

**Managing the Curriculum of Centres  
for Gifted in the North of Israel:  
Perceptions of Stakeholders**

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# **Managing the Curriculum of Centres for the Gifted in the North of Israel: Perception of Stakeholders.**

*Brumer lea*

## **Abstract**

In recent years, most countries of the world, including Israel, have recognised the need to respond to the unique needs of gifted/talented students. Nurturing natural "human treasures" requires the educational system to find a variety of solutions that are suited to the skills and the abilities of each child. How can this potential be nurtured into achievements? This question has led to the establishment of varied cultivation frameworks. This study examines one of these frameworks – the “Children Searching for Knowledge” (CSK) enrichment centres. The project was developed by the administration of the Northern Region of the Ministry of Education of Israel and its goal was to cultivate cognitive, emotional and social fields of study and to provide effective programmes in order to help the gifted children to fulfil their potential and enable them to make contributions to the society. The programme was aimed at the upper stratum, ten percent of students from every school, in every community, from grades 1-6, who were identified through tests and recommendations.

The study deals with the perceptions of the stakeholders about managing the curriculum and relates to ten enrichment centres. It involved interviews, questionnaires and observations and included one regional manager, one supervisor, two welfare managers, ten centre managers, 25 teachers, 500 students and 250 parents.

The research questions examined the goals of the project, the management of the centres, choosing the enrichment programmes, the expectations of the students and their parents, the ability of the project to satisfy the needs of the gifted students and the impact of other factors involved, such as budget, teacher availability and location.

From an analysis of the findings it can be determined that this enrichment programme for gifted students satisfies the needs consolidated in the planning stages of the project, of developing intellectual ability, providing wide and multi-disciplinary knowledge bases, cognitive skills and problem solving, creativity and originality, satisfying tools for independent study through investigation and discovery, improving self-image, and education for social involvement and responsibility.





# Managing the Curriculum of Centres for Gifted in the North of Israel: Perceptions of Stakeholders

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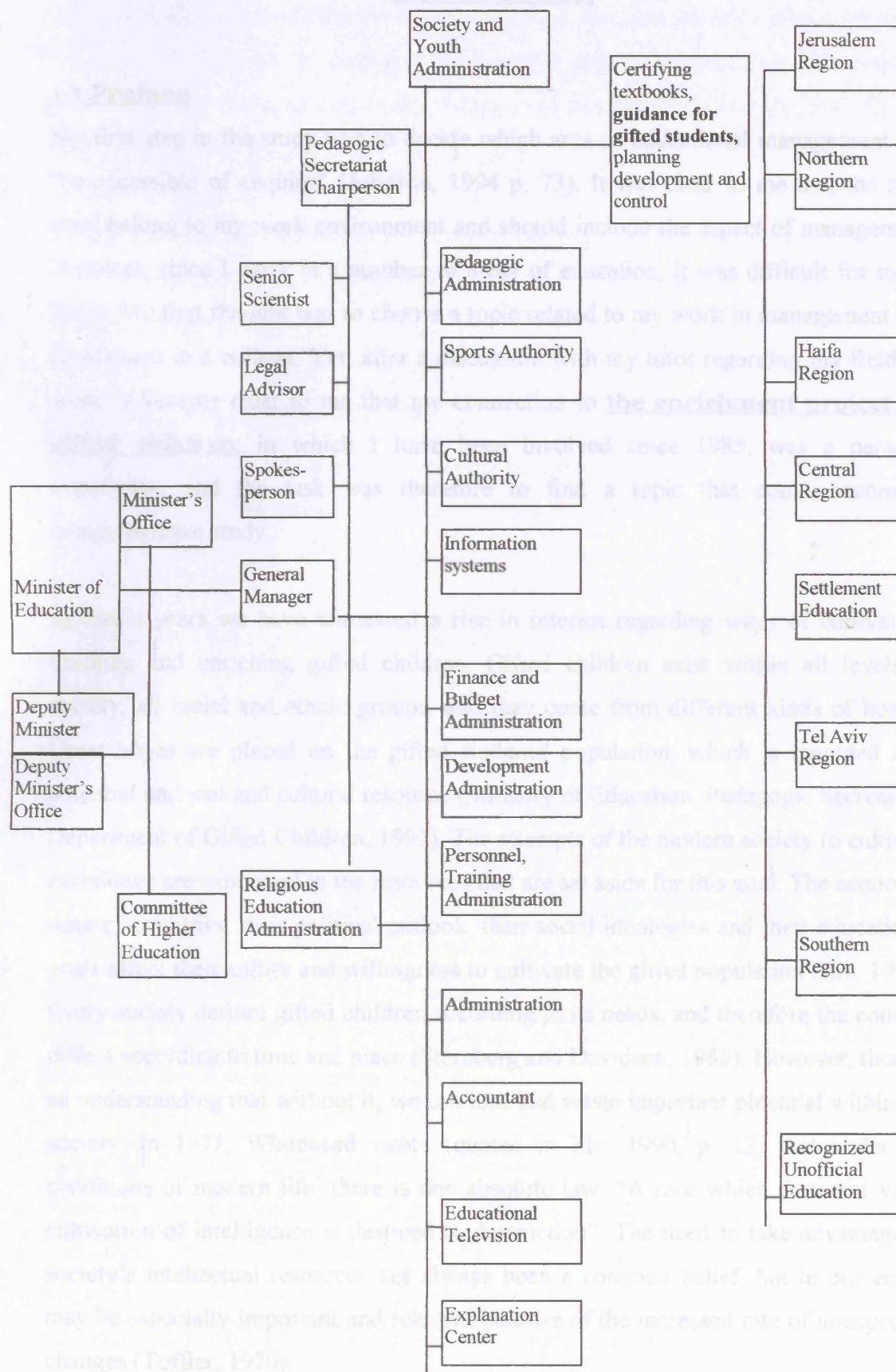
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## Structure of the Ministry of Education



## **Chapter 1**

### **Introduction**

#### **1.1 Preface**

My first step in the study was to decide which area of educational management will "be accessible of enquiry" (Johnson, 1994 p. 73). It was clear to me that the topic must belong to my work environment and should include the aspect of management. However, since I work in a number of areas of education, it was difficult for me to focus. My first thought was to choose a topic related to my work in management of a department in a college. Yet, after a discussion with my tutor regarding my fields of work, it became clear to me that my connection to **the enrichment project for gifted children**, in which I have been involved since 1985, was a personal experience, and the task was therefore to find a topic that could become a comprehensive study.

In recent years we have witnessed a rise in interest regarding ways of cultivating, teaching and enriching gifted children. Gifted children exist within all levels of society, all racial and ethnic groups, and they come from different kinds of homes. Great hopes are placed on the gifted students' population, which is regarded as a potential national and cultural resource (Ministry of Education, Pedagogic Secretariat, Department of Gifted Children, 1993). The attempts of the modern society to cultivate excellence are expressed in the resources that are set aside for this goal. The economic state of countries, their political outlook, their social ideologies and their educational goals affect their ability and willingness to cultivate the gifted population (Ziv, 1990). Every society defines gifted children according to its needs, and therefore the concept differs according to time and place (Sternberg and Davidson, 1986). However, there is an understanding that without it, we can lose and waste important potential within the society. In 1931, Whitehead wrote (quoted in Ziv, 1990, p. 12) that under the conditions of modern life, there is one absolute law: "A race which does not value cultivation of intelligence is destined to destruction". The need to take advantage of society's intellectual resources has always been a common belief, but in our era, it may be especially important and relevant because of the increased rate of unexpected changes (Toffler, 1970).

The cultivation of gifted children is done through the educational systems which mirror our culture and society. In their activities we can discern two tasks, one directed towards transmitting the traditional of the past, and the other directed towards training the children to be active in the dynamic and changing society of the future. The curriculum in the schools is an expression of these tasks (Torrance, 1960; Denton and Postlethwaite, 1985).

The question is asked; does school curriculum also satisfy the special needs of the gifted students? In order to examine the characteristics of the gifted child, one must define “giftedness”?

## **1.2 The Concept of Giftedness**

Defining giftedness is a topic of continual discussion in the research literature. The lack of clarity and agreement between researchers regarding the concept is expressed in the terminology used when attempting to describe a group of “the gifted”.

### **1.2.1 Defining the concept of the “gifted”**

The word giftedness has the meaning of “gift” in many languages. In Hebrew it means given or blessed: “Because God blessed me (HANANI) and I have everything” (Genesis, 33:11). In Latin languages, the word means “having a special skill” - standing out in a certain area. The above concepts can be defined in terms like “talented” and “highly able”. Montgomery (1996) relates to the concepts “highly able” and “average” as two poles with “able” on a continuum between them, and “talent” means a special gift or ability. “Highly able” was defined as gifted children who can be identified by general abilities like memory and knowledge, speed of thought process, solving problems, flexibility and complexity, while “able” children also show some potential or achievement in performance.

Tannenbaum (1983) used the terms “gifted” and “talented” interchangeably. Within the framework of the present study, in the professional literature survey, I chose to use the terms “gifted” and “talented” as synonyms. Braggett (1998), Richert (1997) and Morelock (1996) defined the two terms separately with “talent” relating to special aptitudes and being inferior to “giftedness”. Gagne (1991, 1995) opposes the parallel use of the two terms; “giftedness” means above average ability while “talented” refers



The main idea at the basis of intelligence tests, according to Galton (1883), is the principle of individual differences which can be measured. This principle is based on studies which examined the tie between heredity and psychological processes. In 1908 Binet and Simon published their revised intelligence scale based on an experimental sample of 300 children aged 3-13 who were tested. For the first time the term “mental level” was mentioned, this was later changed to “mental age”. Stern (1914) quoted in Nevo, 1997, recommended using a ratio between the mental age of the respondent and his chronological age, as a measure of intelligence, thus:

$$\frac{\text{Mental Age (MA)}}{\text{Chronological Age (CA)}} = \text{Intelligence Quotient (IQ)}$$

Terman (1916) (quoted in Nevo, 1997) adopted this with a slight technical improvement. He multiplied the numerator by 100, thus:

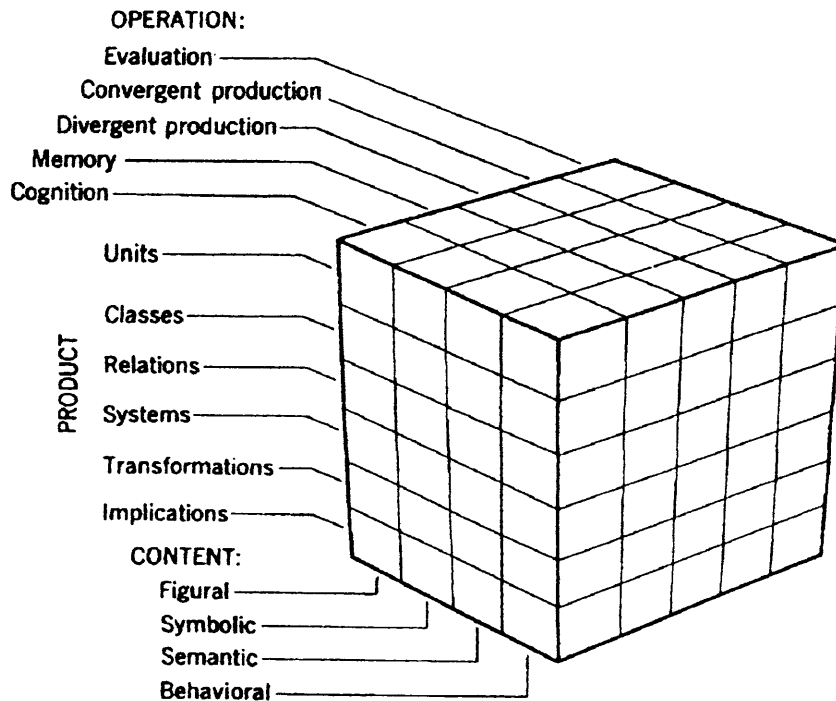
$$\frac{(\text{MA}) \times 100}{(\text{CA})} = \text{IQ}$$

The term **IQ** has become the trademark of intelligence tests but the assumption regarding the permanence of the IQ over a number of years has been problematic; this led Wechsler (1939) to determine the measurement of IQ in relation to an age group. Unlike intelligence tests, which varied by age, the Wechsler test uses the same test for all ages in order to ensure measurement of the same abilities throughout one’s life (Nevo, 1997).

The IQ expresses ability to understand the world, to discover connections between factors and to solve problems by operating logical, abstract and methodical thought, including verbal, numerical, spatial, memory, analytical and conclusive elements. When we need information “about a child’s academic function these tests can be a useful tool” (Nevo, 1997 p. 105), but IQ tests should not be the only measure (Kaufman and Harrison, 1986; Robinson and Chamrad, 1986).

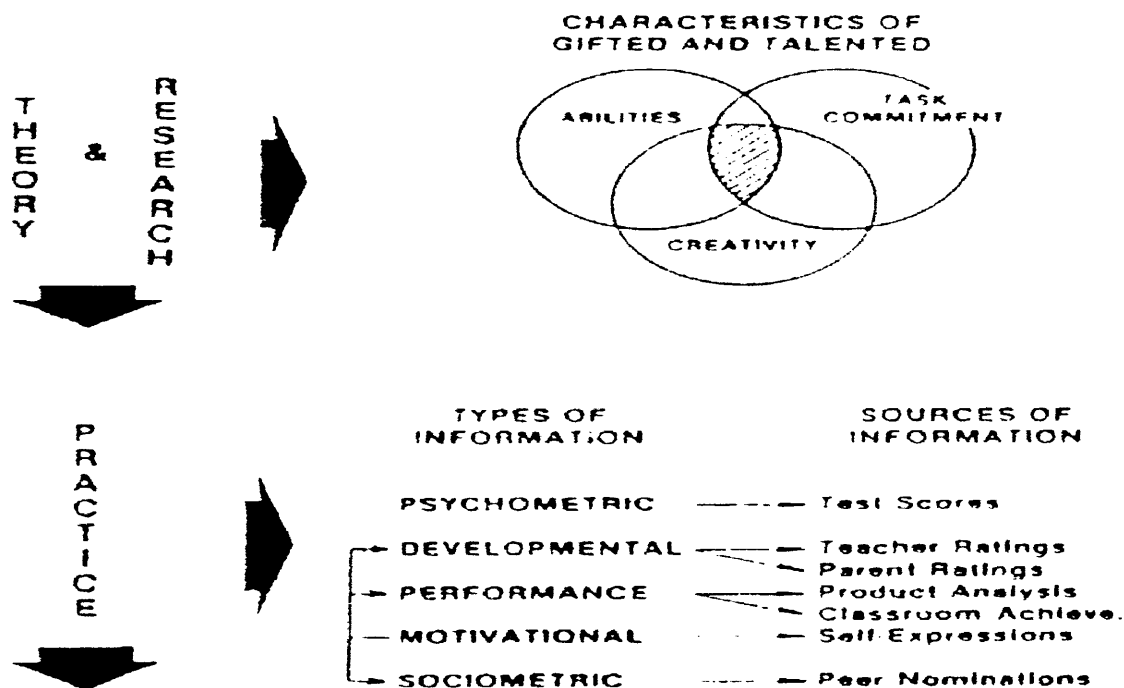
In an attempt to organize the characteristics of intelligence in a methodical scheme presenting the structure as a spatial model (Nevo, 1997), Guilford (1956) focused on cognitive skills and presented an alternative model based on multiple skills. He

recommended the three-dimensional cube model which includes the dimensions of action, content, and product. See Figure 1.1.



**Figure 1.1 Guilford's Theoretical Model of the Intellect Structure (1956)**

This opened the way for other models, which take the qualitative approach, to expand the definition of giftedness. These multiple ability models of giftedness emphasize the connection between cognitive, emotional, social and environmental elements. One example would be Renzulli (1978) who recommends including in the definition the components of ability and thought and components of creativity and personal qualities as shown in Figure 1.2.



**Figure 1.2 Renzulli's Three Rings (1978)**

Renzulli thinks that actual giftedness is a “product of the interaction between three clusters of criteria or of traits which are described in the three ring model” (Nevo, 1997, p. 451). These are above average cognitive ability, the ability to persevere in performing tasks (related to a personality trait) and creativity expressed in flexibility of thought. The area of overlap of the three rings represents unusual achievements according to the requirements of the different areas of content. In his opinion, that simultaneous existence of the three clusters is vital for defining giftedness. Criticism voiced regarding this definition includes the fact that it may "omit students who have plenty of ability and creativity but are lacking in task commitment" (Davis and Rimm, 1985, p.12), i.e. possibly gifted but not recognized.

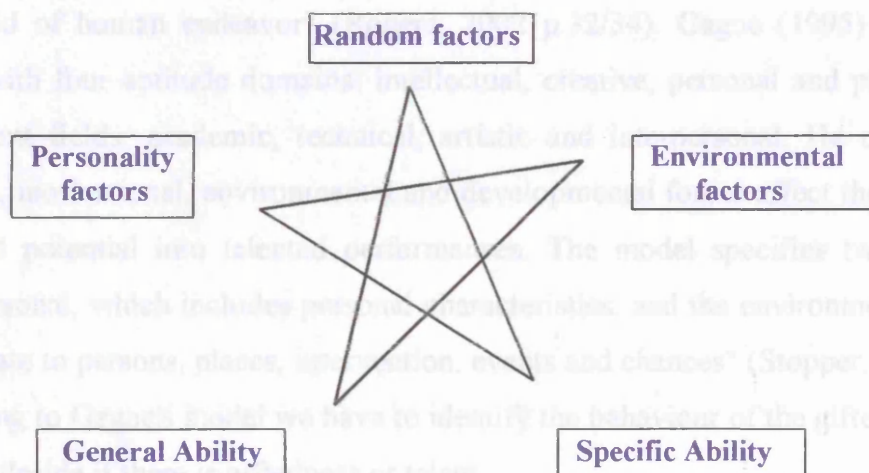
In my opinion these models do not refer to emotional, social and environmental factors which help fulfill the intellectual potential of the gifted person. The emotional factor can be found in the theories of researchers such as Haensly *et al* (1986) and Feldman (1982), and appears in Piechowsky (1979) in his writings about a pool of skills, abilities, experiences and sensitivities expressed in imagination. Their opinion

is shared by Dr. Erica Landau, who referred to the topic of cultivation gifted students and determined that we must cultivate gifted students not only intellectually but also reinforce them emotionally so that they dare to fulfill their abilities in the light of social challenges:

The gifted child is compared to a long distance runner who runs quickly but alone. Therefore, he must be provided with the emotional strength to cope with his isolation and to become a whole individual who knows how to give of himself. (Landau, 1990, p. 161)

Robinson (1993), who related to gifted students fulfilling potential, added the concept of motivation as one of the factors required for high achievements. Trost (1993) reinforced her words with the claim that motivation is the most significant predictor of excellence, and includes traits such as ambition and perseverance, that were also mentioned in Renzulli's model.

The social and environmental components are some of the elements that we can find in the psychosocial approach, which was developed after the 1970s by the researchers McClelland (1973) and Tannenbaum (1983). The model is presented in the form of a star (see Figure 1.3).



**Figure 1.3 Tannenbaum's Giftedness Model (1983)**

Tannenbaum emphasizes that excellence in the various areas of content, internal and external, requires integration and different amounts of psychosocial factors. Similarly

to Renzulli and Marland, he thinks that high general intellectual ability is a necessary but not sufficient condition for achievements. He claims that personality perspective, which includes motivation, perseverance (as in Renzulli's model), self-image, trust in ability, dedication, resolve and consistency, are necessary and aid in fulfilling the potential of giftedness. Environmental factors, which include the individual's socioeconomic status, a supportive environment, family, school, friends, society and the culture that one, is raised in, also mentioned in the model by Milgram (1989) and Monks (1992). Gagne (1985) considers that they serve as catalysts which aid in the cultivation of giftedness. Random factors cannot be predicted and they include luck and personal circumstances. Tannenbaum's theory is very comprehensive and is an "organizing framework with better descriptive and explanatory ability than predictive ability" (Carmel, 1994 p. 11).

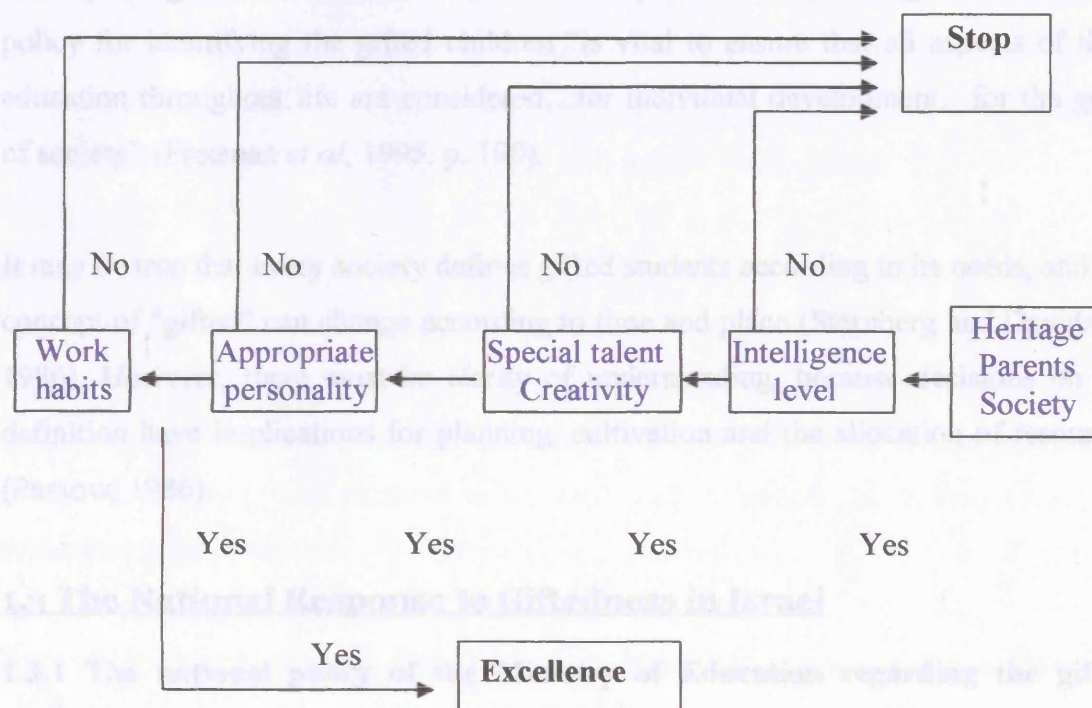
As we can conclude from the theories mentioned above, there are no models that include all the factors defining giftedness.

Further developments, which added weight to social, cultural, environmental and emotional factors, can be found in Gagne's model (1995). In his comprehensive model he refers to innate abilities that "a child is born with" and "extraordinary performance in a field of human endeavor" (Rogers, 2002 p.32/34). Gagne (1995) proposed a model with four aptitude domains: intellectual, creative, personal and physical, and four talent fields: academic, technical, artistic and interpersonal. He claimed that personal, motivational, environmental and developmental forces affect the translation of gifted potential into talented performances. The model specifies two catalysts, intra-personal, which includes personal characteristics, and the environmental factors that "relate to persons, places, intervention, events and chances" (Stopper, 2000, p. 3). According to Gagne's model we have to identify the behaviour of the gifted student in order to decide if there is giftedness or talent.

Rogers (2002) supports Gagne's ideas and emphasizes that it is important to collect information about the potential and the performance of a gifted child. This information (tests, checklists, teacher appraisal, student products and parents' recommendations) is measurable and observable and can help to identify child's needs for educational development.

In addition to personality traits, researchers added the concept of heredity which, according to Piaget (1950), is a factor that is equal to the environment in forging intelligence, where heredity contains intellectual potential and the environment determines the limit to which it will develop (McClelland, 1973; Tannenbaum, 1983; Zixiu, 1993).

These theories show how varied giftedness is and how few of these things are “measurable” relative to the assemblage of traits that create the potential for excellence, as presented in Figure 1.4 (Ziv, 1990).



**Figure 1.4 From Giftedness to Excellence - Flow Chart (Ziv, 1990)**

Giftedness is usually defined as the ability to perform tasks with high quality or to attain excellent achievements in fields that are valued by society (Zorman, 1989).

The method of defining the concept determines guidelines for locating and identifying the gifted student.



### **1.2.3 Identifying and cultivating the gifted student**

In childhood, giftedness is expressed in the buds of ability and interest that are difficult to test according to accepted measures; it is also difficult to judge their quality as achievements in adulthood. Researchers relate to a broad and practical definition that will recognize the multi-dimensional character of giftedness and will provide guidelines for location based on excellence in different fields, not only on a psychometric test or an IQ test (Leyden, 1998; Freeman *et al*, 1995; George, 1995; Goldring *et al*, 1988).

Over the past five years there has been increased awareness regarding the need to identify the gifted student and to find reliable procedures for doing so. Therefore a policy for identifying the gifted children “is vital to ensure that all aspects of their education throughout life are considered...for individual development...for the good of society” (Freeman *et al*, 1995, p. 190).

It may be true that every society defines gifted students according to its needs, and the concept of "gifted" can change according to time and place (Sternberg and Davidson, 1986). However, there must be clarity of understanding, because decisions on the definition have implications for planning, cultivation and the allocation of resources (Passow, 1986).

## **1.3 The National Response to Giftedness in Israel**

### **1.3.1 The national policy of the Ministry of Education regarding the gifted population**

Until the 1990s, the Ministry of Education in Israel had chosen the quantitative definition which implements the system of diagnosis accordingly. This definition could be seen as one-dimensional based on intellectual ability and cognitive achievements.

The researchers Torrance (1962), Getzels and Jackson (1962) and Gallagher (1964) expressed opposition to the existing perception of the gifted child and offered that a broad and practical definition should be developed that would recognize the multi dimensional character of giftedness in a pluralist society. In fact, at the end of the 1990s, the Ministry of Education adopted the qualitative approach (Ziv, 1990).

In the Israeli educational system over the past thirty years there has been a change relating to human potential, and interest has risen in everything connected to cultivating gifted and talented children (David, 1997). Since 1973, the public education system in Israel has accepted the responsibility for providing gifted students with appropriate education according to their skills and talents, in the best possible way, and in a framework including equality and democracy as in Israeli society.

In 1976, when the topic of gifted students was first budgeted as a special section in the budget of the Ministry of Education, it was clear that it was not the intent of the Ministry to fully fund educational activities for gifted students. It only provides a small budget to fund activities for gifted children, in different forms, from different public and private funds. The continued decline in the size of the budget for gifted students between 1976 - 1987 is especially surprising in light of the declaration of intent of the Ministry to provide this topic with greater public weight.

In the middle of the 1980s an essential change took place in this field. The Minister of Education, Mr. Yitzhak Navon, raised the topic to a respected place in the system of preferences in the educational system and today gifted education is one of the eleven central topics in the educational system (Navon, 1984). Because of this decision a special department was established to deal with a variety of topics related to cultivating gifted students.

Three main factors make it difficult for the Ministry to relate to the question of educating gifted students: 1. The social-ethnic factor over-representing western ethnic groups and unjustly educating established and preferred groups; 2. The scientific educational factor which does not include the subjects of literature, art, philosophy etc; 3. The public-moral factor based on egalitarian social perceptions.

The concept of giftedness has been connected to elitist perceptions considered negative. "Giving additional preference in the field of education to such a group that enjoys a wealth of material and cultural advantages is considered to be distorted and immoral" (Goldring *et al*, 1988, p. 211). This perception caused disagreement within the Israeli society which claimed that the unique education that gifted students receive



is based on the individual needs of the student, whilst also relating to his/her age, social environment, needs of society, values and culture (Berman, 1990).

The question of unique education for gifted students can be defined by a number of secondary questions: to what degree is it desirable to budget separate educational, social, cultural and economic means in order to identify students with excellent intellectual skills, creativity, originality and a strong desire to learn? How can we educate and teach such students according to a unique educational curriculum, using teachers trained especially for this in order to help them fulfill their potential? (Goldring *et al*, 1988). Should we teach the gifted students in separate groups, (Goldring, 1988) or in regular classes? (Terman and Oden, 1959).

In a debate in the Pedagogic Secretariat of the Ministry of Education (1988), a recommendation was made to include treatment of gifted students in the general framework of special education with "the view that students with high abilities exhibit one form of special need which should be met in an appropriate way" (Denton and Postlethwaite, 1985, p.i), a method accepted today in many countries.

There are six central elements in education for gifted students that make it more expensive than educating a regular student: the small number of students in the class (as a direct result of personal treatment), developing and acquiring equipment and aids, developing unique curricula (that will be suited to and satisfy the needs and talents of the gifted students), providing additional salaries to teachers, the process of diagnosis and classification, and transportation expenses. This information is taken from a position paper presented by the Unit for Sociology, Tel Aviv University, for a debate at the Pedagogic Secretariat of the Ministry of Education on 29.5.88 (Goldring *et al*, 1988).

The various elements of the educational policy for gifted students are often raised in public debate but the topic of gifted students has not been fully and methodically considered in the Ministry of Education. This topic has not yet been defined as a fixed element in the work of the Ministry in all regions and educational authorities. The phenomenon of giftedness and treating it are known to some of the public, parents and teachers. However, the policy of the Ministry in Israel is to transfer partial or full

responsibility for gifted students' education to other bodies such as local authorities, the universities, and organizational and voluntary bodies (Burg, 1986).

Although the Ministry is only indirectly involved in administration, supervision, guidance and support, the story of cultivation of gifted students in Israel is a success story. This success can lead to the conclusion that it is best if the Ministry continues with its low key policy towards educating gifted students, leaving the bulk of the burden in the hands of others (Navon, 1984).

The educational system is a public system, which is the responsibility of the government, and therefore the goals of education formulated by it can be seen as political-social goals.

### **1.3.2 The goals of the Ministry of Education for gifted students**

The designers of educational policy in a society translate the values into the goals of education. The goals of education can be classified into three types:

1. Overall - determined by policy makers.
2. Designated - determined by the educational systems.
3. Behavioral - determined by the curricular writers or by teachers and instructors (Internal publication of the Ministry of Education).

They differ from one another in the way they are formulated, in their degree of detail regarding the expected change in the student, and in their educational purpose (Guri, 1978). As a meta-goal, it has been decided by the Ministry of Education (1993) that cultivation of the gifted student will be done in a fashion that balances cognitive, emotional, and social fields. Applying the goals will be greatly determined by the character of the framework and its placement.

#### *The goals in the cognitive-intellectual field for gifted students*

1. Providing and developing thought tools in order to cope with different problems via:
  - \* Acquiring independent investigation skills
  - \* Adopting the interdisciplinary approach
  - \* Cultivating the critical approach
  - \* Seeing things in different perspectives

\* Cultivating the courage to recommend unusual solutions.

2. Cultivation of specific skills and abilities, which are required in different fields while relating to the needs and the tendencies of the individual.
3. Developing enjoyment from learning.
4. Developing the ability to perform and produce excellent knowledge.

*The goal in the emotional-affective field for gifted students*

1. Providing legitimacy to expressing emotions.
2. Cultivating an emotional mechanism for self evaluation and assertiveness, and the courage to dare to express emotions and thoughts.
3. Raising self-image.

*The goals of the social-moral field for gifted students*

1. Cultivation and development of social involvement and leadership ability.
2. Development of sensitivity to others.
3. Development of interpersonal communication.
4. Development of responsibility towards society.

(Ministry of Education, 1993)

This assemblage of elements, cognitive, emotional, social, determines the level of the individual's function and the quality of its fulfillment (Halfon, 1996).

The meta-goals of the Ministry of Education regarding education and cultivation of the gifted and talented student led, in 1982, the manager of the Northern Region, Dr. Levy, to appoint a regional committee for cultivation of the gifted students, details below.

### **1.3.3 The background and rationale for setting up enrichment centres for gifted students**

The goals of the committee and its functions were defined in a memo, distributed among the committee members.

These were:

- 1) Developing a programme for promoting the upper stratum of the special care students in the fields of science and art;

- 2) Developing models for operation in conjunction with institutes of higher learning;
  - 3) Pedagogical tracking of application of the programme;
  - 4) Determining principles for identifying the target population among the students tested or recommended for participation in the project;
  - 5) Determining principles for choosing the teachers
- (Internal memo, 29.6.82 - Appendix 13).

The deadline for presenting the recommendations of the committee was August 1982. The committee determined that the definition of the "Children Searching for Knowledge" (CSK) programme and its goals are a combination of the meta-goals of the Ministry of Education regarding education and cultivation of talented students and the national goals defined by the Knesset in the Law of Education, regarding integration and equal opportunities (Elbaum-Dror, 1993). In 1983, the administration of the Northern Region of the Ministry of Education decided to begin the CSK enrichment project, which was a framework for cultivating talented students within the communities. The possibility for learning in the centres was provided to the top ten percent of students in 5<sup>th</sup> and 6<sup>th</sup> grades. The idea was consolidated, developed, funded and operated by the Department of Educational Welfare – "Shahar", headed by Mr. Zvi Abrahami.

At the start of the project, 14 local centres were opened, including approximately 500 5<sup>th</sup> and 6<sup>th</sup> grade students. The success of the project led to its expansion and, from 1984/5, it included approximately 800 students and encompassed all of the welfare communities in the region. In the 1988 school year, 1650 students in grades 5-9 participated and the project was adopted by additional communities not belonging to Educational Welfare, such as Nazareth, Nahariya, and Karmiel. During the same year, the programme began to operate for the first time in Druze and Bedouin communities.

The regional committee of CSK developed the project for grades 4-9. Alongside the project, a non-profit organization was established whose budget was made up of a combination of payments, seven percent received from parents of students and contributions received from different bodies. The budget satisfies the needs of the frameworks and allows the development of curricula, acquisition of equipment and enrichment activities.

Today the project is comprised of the following classes:

1 <sup>st</sup> -2 <sup>nd</sup>	"Hothouse"	]	<b>CSK</b>
3 <sup>rd</sup> -6 <sup>th</sup>	"Children Searching for Knowledge"		
7 <sup>th</sup> -9 <sup>th</sup>	"Excellence", "The Discovery Programme"		

In every community in which a CSK centre has been established there is a local steering committee made up of supervisor, school principals, educational administrators and educational welfare managers - the stakeholders. The students in the project are the upper strata of students in every community. Each school may send ten percent of its students in every grade to the project. Choice of students is made according to standardized tests in reading comprehension and maths given in the third grade.

Beginning in the year 1998, the identification system and process, including recommendations, became the responsibility of the school faculties in the communities, the principals, teachers, psychologists and consultants. The third grade class tutors, with the help of counsellors, rate the students. The criteria used for evaluation include scholastic ability, independent thinking, curiosity, differentiation between important and marginal issues, motivation and perseverance (Appendix 10). (The list of traits that gifted students have as a criterion for identification can be found in Eyre and McClure, 2001, George, 1995, Ogilvie, 1973. A series of traits that may help teachers identify and uncover gifted children in their classes is found in the study done by Laycock and Caylor, 1964.) The principal passes the lists of those with high abilities, which consist of approximately the highest 20 percent of each class, to the regional supervisor for approval. The centre managers and the educational welfare managers in every city receive the names of the students who have been approved and recommended for participation in the CSK centres and these comprise the upper 10 to 15 percent of the students (David, 1992).

Within the framework of the CSK centres, a programme called "the hothouse" has begun to operate shortened enrichment classes (from January till May) for students in first and second grade. First grade students are tested using external tests set by the Karni Institute, which is recognized by the Ministry of Education. These tests are only carried out with the permission of parents, and on condition that they pay for the test.

participation in the programme. (In the Northern Region, only three cities presently operate the hothouse programme). The size of the centre is a direct function of the number of students in the community in grades 1-6 (ten percent of them are referred to the programme). Each class is made up of twelve to twenty students.

The establishment of the centres reflects a policy which determines that students with abilities above their class average should be cultivated, and preference should be given to developing their hidden potential on an individual basis.

#### **1.3.4 The organization and the policy of the centres**

the above determination is the opinion that the regular educational system does not have the ability to fully satisfy the special needs of the population of gifted students, and that the good of the individual and the good of society requires special treatment of this group. This special framework should provide the above students with appropriate conditions for cognitive growth, with a feeling of interest, challenge, the development of skills and the satisfaction of personal needs. The project does not reject or replace existing schools but exists alongside them as a “supplement to...not a replacement for” (Eyre and Marjoram, 1990, p. 18; Bridges, 1973), and has done this from November until May each year from 1983/1984 to the present day. (May, 2002)

At the head of each centre there is a project manager and a “hothouse” manager for grades 1-2. The manager is chosen by the tender committee of the community comprised of the supervisor of the gifted students’ programme for the region, the local supervisor of elementary schools, the Education Department manager, the Educational Welfare Department manager, and the Personnel Manager (the manager is usually someone from the field of education).

The budget of the centre is divided, 50 percent of the cost of the project is funded by the education budget of the community, this pays the teachers’ salaries, and 50 percent is paid by the parents, this pays for materials, equipment and enrichment activities at the centre.

The curriculum is planned by the project manager, in coordination with the educational bodies in the community, and he/she is responsible for choosing the teachers. (If there are laboratory lessons in the centre, a laboratory assistant will be

employed). The programme for grades 1-4 is constructed as compulsory courses, while the fifth and sixth grade students receive a number of options to choose from. The courses in the centres are divided into two fields, theoretical and scientific, and artistic and creative.

The student must participate in the clubs/courses (one in each field), which last for 25 meetings over the course of the school year (once weekly in the afternoon). Over the course of the school year, the students will be required to participate in 80 percent of the meetings.

The first grade students join the programme at the beginning of January, and they participate in 12 meetings lasting 1.5 hours each. The meeting is divided into three to four central topics. The second grade students participate in 25-30 meetings lasting 1.5 hours each for the entire year; these are presented in the form of “clusters” of topics. The third and fourth grade students receive two topics each semester (3 hours each) over the course of 12/13 meetings. Over the entire year, four topics are studied. The fifth and sixth grade students learn two topics for the entire year in 25-30 meetings.

An overall look at the topics that are learned in the centres’ clubs emphasizes the great variety of the fields; for example: scientific - robotics, ecology, young doctors, chemistry experiments, aerodynamics, microbiology, earth sciences, mathematical thought, technological imaging systems; artistic - recording and printing, communication, photography, theatre and cinema, psychodrama, computerized graphics, creating internet sites, creative writing, marketing and advertising, product design, young journalists.

Over the course of the year there are additional enrichment activities outside the annual curriculum, such as educational tours, lectures, presentations, visits to museums and exhibitions. In addition, students who are interested in expanding their personal knowledge and satisfying their curiosity in a certain field will perform a personal project (research) under the supervision and encouragement of the teachers/instructors. There is a regional newspaper for all club students, which is created by the students in the clubs. There are also competitions for prizes among the centres and educational camps during vacations. Every year a number of students

receive certificates of excellence for showing initiative, originality and social involvement in the clubs (choice is made by the teachers in the centre and with the authorization of the centre manager).

At the end of the year, feedback sheets are given out in all of the classes. These enable staff to draw conclusions regarding the success of the project, determine which courses will continue the following year and which will be stopped, make decisions regarding the continued work of the teachers, and pass reports to the local authorities and the supervisor.

Teaching gifted students involves a challenge and uniqueness that does not exist in the formal framework of the regular school where teachers lecture and students listen and recall. "The curriculum is fragmented into subject domains ... students are not required to integrate their personal knowledge... They are expected to believe what is written in the textbooks and what the teacher says" (Montgomery, 1996, p. 89).

#### **1.3.5 The goals of the centres**

The rationale of the programme determines that the potential of the gifted students must be fulfilled and developed. Therefore, four goals were formulated for the project (Appendix 14):

1. Providing opportunities for the gifted student to enjoy an unique educational programme suited to his/her skills and needs.
2. Providing proper satisfaction for the student's intellectual desires and providing opportunities for developing his/her skills at a rate that suits each individual.
3. Encouraging the gifted student to raise his/her level of expectations and to increase preparedness to invest and fulfill his potential.
4. Developing scientific curiosity among the gifted students, cultivating logical thought, creativity and abstraction.

Applying the project objectives takes place in operative frameworks.



### **1.3.6 The delivery systems of the centres**

In Israel, many educational frameworks and varied organizational arrangements have developed with the aim of providing unique education to gifted students. The operative goal of the special programmes is enrichment using topics that are not taught in school because this would prevent the principle of enrichment. These arrangements are called delivery systems and are divided in two:

1. Alternative systems, which include schools for the gifted students or classes for the gifted students within existing school frameworks (this delivery system is perceived as the most accepted and successful in the eyes of those who operate it because it does not interfere with the work of the regular educational system (Goldring *et al*, 1988).
2. Complementary systems, which include classes and clubs in the afternoon hours, in public locations such as school or municipal buildings, colleges and universities, whose goals are to provide enrichment and/or acceleration opportunities to students with a high general ability and high scholastic achievements.

The concept of delivery systems helps us understand that there are many organizational frameworks which provide special education, but no single one of them is the best choice for all of the gifted students. We have to decide which programme will suit their social, emotional and physical needs, as well as their intellectual skills (Milgram, 1992). In most cases, these frameworks are under public supervision.

Society is interested in educating its students according to certain principles that reflect its values, through the educational system – the educational curricula.

## **1.4 Curriculum Issues**

### **1.4.1 Defining curricula**

The researchers Apple (1992), Cuban (1992) and Goodson (1991) agreed that curricula are social-cultural documents whose design is the product of political negotiation. This understanding highlights the limitations of dealing with planning the curriculum as a topic that stands alone, and defines it as depending on many contingencies, and as having a reactive character. It includes principles, goals and lists of topic headings, which relate to developing the plan (Eden, 1987). Schwab (1973, 1964), in his writings on developing curricula, emphasized the complexity of the educational curriculum, the need for varied thought in areas of knowledge and

pluralism regarding the many aspects involved in writing it. Different and changing outlooks regarding the place of the individual in society, their development and needs, affect the content and the recommended methods of training the student for complete membership in society. This does not occur all at once. Changes in education in school take place continually and gradually.

In essence, the curriculum deals with three questions. What information, skills and values are important to teaching? Why? How will the students learn them? Such questions make up the basic elements of planning studies, goals, content, organization, products and the mutual relations between them (Cuban, 1992).

The educational curriculum is a multi stage phenomenon, which develops from one form of expression to another. It begins with the stage of its expression in the minds of its writers and ends with the stage of presenting the products of the curriculum. It can be in the form of educational achievements among students and in the changes that occurred among the teaching staff and the supervisors, the curricular planners themselves, the parents, and between anyone affected by the application of the curriculum.

Goodlad *et al*, (1979) and Silberstein (1984) recommended a five-form model in which the educational curriculum is developed:

1. The ideal curriculum - ideas and intents are growing and formulating among the curricular writers in this form. This is the academic level. It includes professors in the academic disciplines, which typically form the bases of the school curriculum.
2. The formal curriculum - this is the common and central curriculum for all students. In Israel it is also called the core curriculum, which includes an agreed list of basic guidelines, goals, values, concepts and skills. The ideas are consolidated into documents, which include general concepts in all of the areas and materials in this form. External developers usually write such documents and they are authorized by the pedagogic secretariat of the Ministry of Education. They are considered the obligatory documents in all educational systems in Israel (Ben Peretz, 1995). This level includes the Ministry of Education textbook publishers, educational organizations and teachers' unions (Klein, 1991). According to Eisner (1979), this stage is called the explicit curricula. In the broad sense, it is all that occurs in

planning, teaching and learning an educational topic. In the narrow sense, it is a general curriculum, with topic headings and a list of topics for teaching a course (Tyler, 1950).

3. The perceived curriculum - this curriculum is drawn in the heads of the writers. Often it is also called the instructional curriculum because it is a teaching programme for teachers based on their perception of the educational curriculum. "This level is composed of what the classroom teacher decides in his or her planning about curriculum and its implementation" (Klein, 1991, p. 29).
4. The operational curriculum - this is the form of the curriculum that is expressed in events and occurrences in the class during the application of the curriculum. This level is the interactive curriculum (Jackson, 1966), the curriculum that unfolds in the classroom because of engagement of the teacher and students with the content to be learned. Connelly and Clandinin (1988) claimed that teachers could get much out of content and study materials, but it depends on their knowledge, experience, familiarity with the class, their ability to interpret and their degree of openness to new ideas. The teacher may desire and intend to implement a certain curriculum in her or his classroom, but the circumstances of the classroom and the interaction of the teacher and students may create quite a different curriculum (Goodlad, 1984; Klein, 1989).
5. The experiential curriculum - this is the product of the experiences that are received by students. Each student makes a decision about the degree to which he or she will participate in the curriculum. This will give the unique view of what the curriculum ought to be (Klein, 1991).

All of the stages that have been detailed relate to the explicit curriculum but there are two types of curricula related to the unpredictable products of the teaching-learning process (Ben Peretz, 1995). The hidden curriculum - according to Martin's definition (1976), the hidden curriculum includes the result or byproducts of what occurs in schools or in the environment outside the school, especially what is learned indirectly. According to him, the hidden curricula are an inseparable part of learning situations. Gordon (1988) defines the hidden curriculum as unintentional messages received because of the physical and social facets of the school and out of the teaching process itself. It is customary to see the main messages transmitted via the hidden curriculum in the field of values, attitudes and beliefs such as achievements, success,

commitment and perseverance in fulfilling different tasks. Eisner (1979) adds another type of curriculum, the null curriculum that relates partially to the perceived curriculum, to content fields, intellectual processes and values that remain outside the curriculum because no system of study materials can include everything. Decisions must be made regarding which of the possible elements will remain outside the curriculum. Connelly and Clandinin (1988), discerned its importance in the context of the concept of curricular potential, which “depends on the mutual relations between teachers and the study matter” (Ben Peretz, 1995, p.53). After the teacher has identified the missing elements of the curriculum, he/she can create complementary curricular elements.

The educational curricula in the enrichment centres will be analysed within the theoretical frameworks of the models described in this chapter, both in their ideological perceptions and in the application made of them by the teachers of the clubs.

The three basic questions that the curricular planner faces are goal, means and evaluation. Along with these, there are other questions. How will the goal be decided? How will the means be chosen? What are the sources for consideration and making decisions? (Eden, 1971).

#### **1.4.2 The operation of curricular planning**

Planning usually begins with formulation of goals:

1. The general - value objectives are determined in consultation with thinkers and public individuals, and can differ from society to society in accordance with culture and values.
2. The unique-operative objectives relate to content and are determined by professionals and specialists.

The next stage relates to operating the curriculum, including developing study materials. Through all stages it is necessary to include an evaluation programme as an integral part of the plan, to accompany development, operation and application of the curriculum.

In any planning decisions are made on three planes: policy, institutional and teaching.

In the end it may be claimed that any curricular decision is mainly political-bureaucratic, stemming from the value system of the attitudes and preferences of the decision makers (Chen and Guri, 1977). The role of the educational setup is to clarify if its goals stem from the desire to satisfy social needs or needs related to personal development, or perhaps out of a desire to satisfy both systems of needs at once (Taba, 1962). Curricula, which disclose the goals which guided their preparation in their introduction, hint at a commitment to lead the student towards these goals. The didactic goals and needs of the curriculum provide it with internal logic, structure and justification for attaining a “change” or “achievement” in learning (Lamm, 1974).

Curricula serve as the basis for directing teachers in their operation processes.

#### **1.4.3 Operating and applying educational curricula**

When operating the curriculum, teachers are asked to examine the curriculum and recommend changes in study materials, so as to suit them to the learning situation within the class. During operation there is a risk that the curricula may not be operated according to the intents of the writers, but there is a chance that the teachers will uncover curricular potential which will suit their own values and knowledge and the personalities of their students (Toktelli, 1994). In the educational system in Israel, the Pedagogic Secretariat discusses recommended curricula that are consolidated in the planning and development stages.

In the discussion that takes place in the operating stage, different recommendations are raised for corrections and changes and these are referred to the professional committee for debate. In the case of a disagreement regarding a principled issue, the issue is referred to the Minister of Education for his/her decision. After authorization, the experimental version of the curriculum or Publication A is published (Eden, 1971). After receipt of the opinion of scientists, teachers and public officials, and after experimenting with as many parts of the curriculum as possible, there is a renewed discussion in the professional committee and in the committee authorized by the Ministry of Education. Based on these data, the curriculum is rewritten and published in its final version, which also guides the book writers. At the same time, educational activities are prepared; these include material for the student and a guide for the teacher. Textbooks prepared by the Educational Curricula Centre give examples of the

spirit of the curriculum and are an example for external writers.

The place of the teacher and the character of his involvement are dependent on desire, ability and personal decisions, and on the opportunities open to the teacher in the light of the planning policy that central bodies dictate to the educational system.

#### **1.4.4 The role of the teacher in curricular planning**

In 1982, the Pedagogic Secretariat adopted the recommendation of the Educational Curriculum Department regarding three types of curriculum, compulsory, elective and permitted. In the compulsory and the elective curricula, syllabi have been created and there are varieties of learning materials that have been prepared by professional bodies. The curricula in compulsory subjects and elective subjects are binding documents, unlike study materials, which are not binding at all. The permitted curricula are curricula that should grow out of local initiatives, in order to fulfill the desires and needs of local educational factors. In the light of this planning policy, the autonomous teacher has three paths that can be taken according to the appropriate contexts (Silberstein, 1984):

1. The path of the autonomous consumer.
2. The teacher who develops study materials independently.
3. The teacher who develops curricula independently.

The self-image of teachers regarding their place in the framework of curricular planning is often in conflict because of the messages that the teachers receive from the educational establishment. On the one hand, teachers are called upon to innovate the curricula in a loyal manner and on the other hand they are aware of the fact that it is expected of them to initiate and develop curricula while making changes/innovations in the educational system (Connelly and Ben-Peretz, 1980). (Teachers in the enrichment centres act as autonomous teachers who choose to develop their curricula independently.)

“A close relationship should exist between the concept of giftedness...characteristics of gifted...identification...and programmes of learning for them” (George, 1995, p. 30). The main aim of the policy for educating the gifted students is to provide opportunities to fulfill their potential (Freeman *et al*, 1995).

#### **1.4.5 The role of the Ministry of Education in developing educational curricula for the gifted students**

The appropriate education of gifted students “has been for many years a topic of great discussion and debate among educators” (Barbe and Renzulli, 1975, p. 433).

Researchers claimed that the gifted students had to learn topics and subjects outside the regular curriculum which most students undertake (Teare, 1997; Koshy and Casey, 1998; Eyre and Marjoram, 1990). Experts on gifted students education such as Tannenbaum (1987) and Passow (1987) pointed out the need to make a serious effort to develop curricula for the gifted students. They believed that a Committee for Curricula should be set up to decide on the aim, the scope and the continuity of the lessons that are offered within the frameworks of the programmes, along with a system of their authorized evaluation. The heads of the educational branches of the local authorities tended to see development of curricula as one of the elements of education for the gifted students that must take place within the Ministry of Education (Goldring *et al*, 1988).

Upon the establishment of educational frameworks for gifted students, the initiators succeeded in overcoming two central difficulties, establishing an educational framework and locating the gifted students for this framework. It seemed that the main barrier preventing the continued development of education for gifted students was the creation of a curriculum for them (Maker, 1982). Difficulties were concentrated in four central issues: a paradigm, expressed by a lack of continuity and consistency, limited availability, the existence of few educational curricula that were broadly distributed and within reach of teachers, and a lack of methodical planning of the educational curricula. (Not until 1995 was a curriculum published on a number of topics.)

The process demands the setting up of a permanent centre with experts on curricular development and learning styles for the gifted students, and distribution of curricula and study materials. Single teachers with such a complex task cannot set up such a centre, and no local municipality will fund a group of experts (Pedagogic Secretariat Debate, 29.5.88). Today, there is almost no formal and consistent curricular development for gifted students, but there are guidelines. All of the curricula that have

been developed have been done in parts, via local initiative and according to the personnel that was available, with no long term plan to encompass most study topics (Ministry of Education, 1993).

Rachel Zorman and Shlomit Rachmel, who head the Department for the Gifted, composed the guidelines for the unique curricula. The Ministry of Education and the Szold Institute printed publication number 715 in 1995 – described below.

#### **1.4.6 Guiding principles in special curricular planning for gifted students in Israel**

The curriculum for gifted students should be based on the individual needs of the student and relate to the students' age, social environment, values and culture.

1. The curriculum should relate to the traits of the gifted student and to goals of cultivation, and it must provide special educational experiences. In planning the programme, a balance must be maintained between the humanities, social sciences, life sciences, natural sciences and the exact sciences.
2. The curricula should be focused and organized including central ideas, problems and topics, which combine information with cognitive systems.
3. The curricula should be structured in a way that allows the development and application of cognitive skills and independent research in order to allow the student to understand existing information and/or produce new knowledge.
4. The educational curricula shall allow the student to investigate changing information and knowledge continually, while developing a love for continual learning.
5. Curricula will encourage exposure to appropriate and special resources that will offer opportunities for using unique investigative methods, using progressive technology, with the aid of experts and learning resources.
6. The curricula will emphasize creativity and excellence in performance/products.
7. The curricula shall provide the student with opportunities to develop their understanding regarding strengths and weaknesses, areas of interest, learning styles and preferences.
8. The curricula shall ensure cultivation of the student's sensitivity towards others and, in addition, develop individual involvement in the society and the State.
9. In creating the educational curriculum, there should be emphasis on the



interdisciplinary aspects of the topics being learned; it is recommended to construct an interdisciplinary curriculum.

10. Room must be left for discussing actual problems taken from every day life.  
This is in order to aid students in making decisions in the future, and to educate them into better problem solvers.
11. It is recommended that the programme be accompanied by tools for evaluation and feedback (Ministry of Education, 1993).

The baseline for developing a curriculum for the gifted students is defining the general goal of the programme, as emphasized by Passow (1986).

#### **1.4.7 The goals of the enrichment centres' curricula**

The optimal combination of various curricula should vary from student to student and should allow gifted students to take advantage of their potential.

The general goals of the enrichment programme, formulated by the steering committee made up of the employees in the department of gifted students and curricular planners, are:

1. Cultivation of the cognitive field.
2. Developing social awareness and cultivation of involvement with the society and the State.
3. Providing opportunities for gifted students to be immersed in a rich educational environment.
4. In the informal field: legitimizing excellence, curiosity, humour, daring and originality; perceiving studying as an enjoyable experience.
5. Radiation out into the conventional school system.

(Ministry of Education/Szold Institute)

In summary - a curriculum is a plan for the teaching-learning process. It contains the values of society which are expressed in the educational system. One of the educational system's roles is to construct a curriculum suited to the level of intellectual development of gifted students and their special needs, a curriculum characterized by a high degree of challenge in learning, exposure to a variety of fields, developing cognitive skills and problem solving skills, while using appropriate teaching methods.

This curriculum should be different “in both pace (quantity) and depth (quality) of students’ learning” (Porter, 1999, p. 172).

## **1.5 Developing a Focus for Research**

### **1.5.1 The stakeholders**

A policy setting out the philosophy and aims for the education of the talented has to be clear to everyone concerned, because efforts to change attitudes are unlikely to be effective without their involvement and agreement (Freeman *et al*, 1995, p. 189).

The curricula that are transmitted in the enrichment centres are not operated in a vacuum. Around them there is a system of values, society and culture, policy and political considerations, community and citywide interest, an educational system including schools, principals and teachers, and the family unit including parents and students. All of these stakeholders are involved in decisions connected to the enrichment programmes for the gifted student (Davis and Rimm, 1985).

### **1.5.2 Identification of problematic issues**

The enrichment centres are under the uniform supervision of the Northern Region of the Ministry of Education. The instructions and guidelines are common, but the methods of operation and application can differ because each centre operates as an autonomous unit and every manager has a different approach. The problematic issues stem from a number of factors:

1. The profile of the population of each centre may differ.
2. A different population profile in schools in one community. (One of the policy lines determines that equality must be maintained in community and 10 percent of students from each school must be accepted.) Do these two issues create heterogeneity in the classes of the centre?
3. The attitude of the local educational authorities to the programme (which is usually expressed in financial budgets). It is important to note the relations between the centre manager and the education department in the community at this point.
4. The geographic distance between the centres creates a problem in locating and employing suitable teachers.

5. In small centres there are a number of problems and in order to create a variety of enrichment programmes the percentage of students acceptance is raised (from 10 percent to 15 percent and sometimes 20 percent). Because of budgetary constraints, they cannot employ adequate teachers or purchase programmes from external companies that operate enrichment programmes for the educational system. In addition, they lack equipment and modern accessories and they lack personnel in secretarial services, laboratories and maintenance.
6. The involvement of parents may differ in each community .
7. In centres where managers change yearly there is a lack of continuity.
8. The many informal programmes in well established cities create competition.
9. A community with outlying neighborhoods requires a transportation system that places a budgetary load on the centre.
10. Communities close to the border require a security official.
11. The school principals do not see themselves as partners in the gifted student educational activity.

### **1.5.3 The research goal and research questions**

The topic of this study is: **Managing the Curriculum of Centres for Gifted students in the North of Israel: Perceptions of Stakeholders**. The study will deal with groups of gifted students who have been defined as such according to suitable tests, and the opinions/recommendations of educators and advisors in first through sixth grades in ten centres in the Northern region of Israel.

It will also include questionnaires, interviews and observations.

The research questions are as follows:

1. What are the goals of the programme as perceived by the Managers of the centres and other stakeholders such as the Regional Manager of Educational Welfare, Regional Supervisor, Local Welfare Manager and Teachers?
2. How do the managers make their decisions about the enrichment programme? How do they define the programme to the teacher?
3. What is the degree of satisfaction and enjoyment of the gifted students?
4. Do the programmes match the expectations of the gifted students and their parents?

5. What is the impact of variable factors that are involved in choosing the programmes? (Such as budget, teacher availability, location of the enrichment centres.)

### **End Note**

In the transition to the 21<sup>st</sup> century, human culture is going through a wave of changes (Toffler, 1992). The social, economic, industrial and technological changes give humans challenges that they have never before known (Harkins, 1992; Perleman, 1993). In this era, called the Knowledge Age, the main intellectual activity will be to increase the value of available information by organizing it, mapping it, processing it, changing it and creating new and more original information.

The educational system must take a new stand (Koshy and Casey, 1998; Ziv, 1996; Sarason, 1990) that will deal with improving future knowledge and giving gifted students challenges so that they can adjust to changing situations and help design and even form them. The bodies that care for educating the gifted ones:

Must act according to ancient wisdom of the seamen: we cannot direct the wind, but we can prepare the sails. We cannot teach them the future but we can provide them with the tools to cope with it (Landau, 1990, p. 164).

## Chapter 2

### The Literature Review

“**The curriculum**” – what does it mean and what does it include?

When one uses the word “**gifted**” – what does one mean?

When one combines the two concepts – what does one get?

The answers to these three questions comprise the sections of the professional literature survey: the curriculum – the gifted student – **the enrichment programmes** for the gifted students.

#### 2.1 Preface

Determining the essence of the definition of giftedness directs educational planning, determines the development of curricula, and delineates the group that will be eligible for financial resources. Different outlooks on the place of the gifted persons in society, and on their development and needs, affect enrichment programmes; around these is created an educational system aimed at providing them with an appropriate response (David, 1997). Eyre and Marjoram (1990) state that enrichment programmes are special curricula for the gifted students that allow them advanced study beyond the regular curriculum. According to Torrance (1962) and Gallagher (1964), this cultivation programme is the most desirable as it is based on taking advantage of the curiosity and creativity of the gifted ones but the “Programmes can be maintained only if resources are provided” (Jackson, 1980, p. 13).

This study examines the outlooks of the stakeholders: the regional educational welfare manager, the regional supervisor, local educational authorities, centre managers, teachers, parents and students, with regard to the enrichment programmes for the gifted students in 10 centres in the north of Israel. The stakeholders, who are partners in the programme, “feel that they own a piece of the action, that it is their programme, therefore they have a commitment to make it succeed” (Jackson, 1980, p. 11). The importance of a study examining the achievements and contribution of cultivation programmes for the gifted students stems from the belief of the stakeholders that the gifted students do not receive a response to their needs in the regular education frameworks. Beyond the obligation to provide every regular or gifted student with an

educational plan that suits his/her special needs, society must have an interest in developing enrichment programmes for the gifted ones because of its desire to enjoy their contribution to humanity. This stems from a hope that these same gifted ones will show involvement and willingness to cope with challenges in the future (Berman, 1990).

The first section of the literature survey deals with the meaning of the curriculum. It encompasses and includes definitions, theories, managing the curriculum and evaluation.

## **2.2 The Educational Curriculum**

There are different ways of looking at the concept of the curriculum and one “cannot possibly embrace all the definitions in terms of their application in all contexts” (Middlewood and Burton, 2001, p. x). However, we can focus on some contexts which relate to the needs of educational management.

### **2.2.1 Definitions of the concept**

“The school is the curriculum” (Lofthouse *et al*, 1995, p.139). This is a simple but challenging definition. This wide definition attempted to explain the scope and dimensions of the concept. It was used by Tyler (1950), Kerr (1968), Gordon (1975), and Adar and Fox (1978) who saw the curriculum as everything that occurs within the school. Other researchers defined it as a social-cultural document formed by decision-makers through political negotiation (Dror, 1984; Goodson, 1991; Cuban, 1992; Apple, 1992). Eden (1976) added that the curriculum copes with the past and the future, using different interpretations, reflecting the needs of society and the place of the individual within it. Over the years, different definitions were based on the essence of teaching, the place of the student in the learning process, and the role of the school. Inbar (1998) called it a work of art of educational perceptions, and Beauchamp (1981) referred to it as a document that starts planning of the teaching work.

Johnson (1967; 1981) and Schwab (1983) related to the curriculum as something that is decided by the teacher. Schwab (1983) identified the educational curriculum as a system of bodies of information and skills that only reach fruition when dedicated

teachers successfully transfer it to different studies on different levels. This definition emphasized the centrality of the teacher in making curricular decisions. Schwab felt that teachers must be involved in the debate, considerations and decisions regarding what they will be teaching and how they will do it. Johnson (1967; 1981) also voiced this opinion and claimed that teachers should suit external curricula to the teaching circumstances in the class, because only they are familiar with the quality of their classes. He even limited educational curricula to lists of predicted educational products, and claimed that this was a structured system of directed learning results.

Taba (1962), Stake (1967), Hirst (1968) and Levy (1973) saw the curriculum as something that would mould students. Taba (1962) recommended organizing the educational curriculum around concepts and skills of students, not around subjects and content. Levy (1973) took an opposing view and saw the educational curriculum as a list of topics or aims, taught according to a certain order, that can help create desired changes in cognitive, affective or psychometric behaviour in students. Stake (1967) largely agreed with this and decided that the basic aims were the backbone that organized and drew together all of the aspects of the curriculum. Hirst (1968) also felt that without setting educational aims a curriculum cannot be prepared; he therefore defines it as a programme of activities that is designed such that the students can use it to attain educational goals and aims.

Bobbit (1918), Robinson (1969), Schwab (1973), Oliver (1977) and Pinar (1978) all referred to the educational curriculum as educational experiences that students have. Schwab (1973) and Herrick and Tyler (1950), determined that teaching experience could serve the intents of the planners. Fulfilling the ideas and the activities that are recommended in the educational curriculum turns them into actual experiences. Pinar (1978) uses the Latin root “**currere**” meaning track, run, process, and progress; he recommends focusing on learning the curriculum as an experience that he sees in terms of a runner’s experience. The runner can be the teacher, the student, or anyone who is in contact with the curriculum. Even Bobbit, in 1918, defined the curriculum as a series of experiences that students must undergo on their path to attain the goals. Robinson (1969) conforms to this attitude, seeing the development of the educational curriculum as constructing and forming a continuum of educational experiences that relate to predefined goals. Oliver (1977) also accepted this general approach and

defined the educational curriculum as a system of all the experiences that the student has within the school framework.

We can summarize the definition of the concept of educational curriculum in a number of main points:

1. Bodies of knowledge, ideas, topics and skills, planning, organization, and directed results (Tyler, 1950; Herrick and Tyler, 1950; Taba, 1962; Kerr, 1968; Chen and Guri, 1978; Beauchamp, 1981; Schwab, 1983; Cuban, 1992).
2. A summary of experiences that is included in the learning process that the teachers and students go through (Robinson, 1969; Schwab, 1973; Oliver, 1977; Johnson, 1967; 1981).
3. Educational values and aims that create the combination between education, society, environment, the needs of the student, and the place of the teacher (Stake, 1967; Hirst, 1968; Eden, 1976; Dror, 1984; Goodson, 1991; Cuban, 1992; Apple, 1992).

These definitions emerged from the theories, approaches and outlooks concerning the curriculum which were found in the literature.

### **2.2.2 Theories, approaches and outlooks of the curriculum**

The mainstream approaches to the curriculum presented in the literature are:

- 1) The knowledge structure approach in which the emphasis is on the essence of knowledge, structures and central ideas, and the development of concepts and principles (Schwab, 1964; 1978; Schubert, 1986).
- 2) The integrative approach, which relates to goals, social needs, the character of the student, values, and the work circumstance of the teacher (Connelly, 1972; Ben Peretz, 1975).

#### *The structure of knowledge*

The structure of knowledge is a concept presented by Bruner (1960) and was used as the basis for educational reform and changes in the educational curriculum in the 1960s and 1970s in the USA and subsequently in Israel. The concept has become a central factor in education (Eden, 1971) and has been defined as based on two elements:



1. The concepts, ideas and basic principles of the subject that are the formats for organizing the educational curricula;
2. Research methods in the subject that mean the use and application of concepts and principles in order to acquire additional information (Allpert, 1990; Silberstein, 1991).

It was used as a means to organize study material for teaching. Its analysis exposes:  
i) a basic internal structure - the essence of the subject (Ben Peretz and Zeidman, 1986); ii) bodies of knowledge (Phenix, 1964); iii) forms of knowledge (Hirst, 1974).

The structure of knowledge clarified the efficiency of the structure of research for developing critical thought and cultivating intellectual training, determining that one must transfer educational planning to experts, and assuming that teaching would be an incentive for learning and promoting human knowledge (Schwab, 1964). However, this approach does not relate to goals, values, social needs, character of students, involvement of teachers, the role of the school, and interpersonal relations (Martin, 1970; Fenner, 1970).

The criticism made of the disciplinary educational curriculum focused on the failure of the curriculum to follow the changing nature of knowledge and supply students with intellectual tools that they would need in a competitive society. The search for personal and social meaning in learning, and the demand for relevant educational curricula that were meaningful and more practical for the student, led to the development of the idea of integration in the 1960-70s (Taba, 1962; Miel, 1964; Shipman, *et al*, 1974; Jenkins and Shipman, 1976; Kelly, 1989; Kimpston, 1989).

### *The integrative approach*

The integrative approach mainly deals with the desire of the individual to know themselves and the world surrounding them. The approach directs the teacher and his/her students to expose connections, to search for meaning, to interpret reality and to take an active part in designing it, while acquiring learning skills that will make the students independent and active (Martin, 1970; Fenner, 1970; Ackerman and Perkins, 1989). The literature offers many terms for the integrative curriculum such as multi-disciplinary learning, interdisciplinary, integrated, holistic, and unifying a number of disciplines (Blackie, 1974; Cohen, 1988; Jacobs, 1989; Kimpston and Relan 1991).

Integrative organization also leads to cooperation between teachers who were previously a group of individuals, cooperation that cuts through professional boundaries, increases the involvement of the teacher in school life and turns the teacher into an active partner in the planning process (Bernstein, 1971; Connelly, 1972; Hamilton, 1973; Musgrove, 1973; Kelly, 1989).

From the debate above the impression is that there is a dichotomy in which the choice is one of the two approaches. However, researchers saw the possibility of integrating the approaches.

#### *The synthesis between the two approaches*

Miel (1964) saw this as accepting achievements and developments that occurred in the disciplinary curricula. Ingram (1975) claimed that the integrative approach is an ally to the uniqueness of subjects as it “allows seeing the forest and the trees” (p. 46). Jacobs (1989) claimed that one could teach using the integrative approach and still maintain the uniqueness of each discipline. Betty Shoemaker, who participated in the Committee for Developing Integral Educational Curricula towards the 21<sup>st</sup> Century, “Education 2000”, in the USA in 1991, defined the concept ‘integrative’ as education organized in such a way that it unifies the different aspects of the curriculum into a significant connection. She claims that integrative education will lead to learning and teaching reflecting the real world.

In the educational system in Israel, the trend towards developing integrative approaches began in the 1970-80s because of opposition to the disciplinary trend that had previously been common (Eden, 1980; Ben Peretz and Ziedman, 1986). Since the 1980s, legitimisation has been given to both approaches in autonomous schools in Israel and the advantages that can be obtained from the educational curricula and the aims of education have been emphasized (Silberstein 1990).

A combination or synthesis of the knowledge structure approach and the integrative approach can create a complementary situation in which one approach makes up for the weaknesses of the other (Eisner, 1971). Both approaches can appear with one exchanging for the other in consecutive periods, or they can appear at the same time

in different educational systems or institutes. In the educational literature, we can find practical expression of this direction of thought in two known phenomena:

1. The “pendulum” phenomenon in curricular planning (Connelly 1972; Schwab, 1983; Kliebard, 1988).
2. The phenomenon of separating approaches between types of school: this was common in the 1930-40s in the USA (Dewey, 1956), in the 1970-80s in England (Egglestone 1977), again in the 1990s in the USA (Kliebard, 1988), and also in the 1990s in Israel (Lamm, 1987).

In summary, today, from a concentrated and uniform curriculum that was used in the educational system, we have moved to a state of suitability and flexibility in the curriculum. The time has come to create an authentic curriculum that is based on the interests of the students, teachers, parents and community. The traits of the curriculum do not have to be defined in terms of content and materials but in terms of process, the development of dialogue, investigation and change. The concept of educational curriculum will become a means of transmission, change and creation of a culture, because of the fact that “the system surrounding us is in the process of continual change while the change is the source of the order that it develops” (Kaspi, 1995, p. 14).

### **2.2.3 Types of educational curricula**

What are the types of curricula that exist in schools? What do they include? In addition, how do they influence the topics, content and the teaching/learning process?

#### *The explicit - overt - stated curriculum (the core curriculum)*

In Israel, these documents are physically expressed in brochures that are published by the Educational Curriculum Department of the Ministry of Education. They include two sections: 1) the general aims of teaching a subject; 2) a list of detailed lessons and topics (syllabus). This central curriculum is called the core curriculum. It is consolidated as a meta-framework suited to the needs of society (Ben Yosef, 1998). The curriculum encompasses the overall structure of studies in school: educational goals, central ideas, concepts, skills, abilities and content.

### *The hidden curriculum*

The hidden curriculum is not physically expressed because it is hidden from the eye and is found in the thoughts of the teacher; it is, however, an inseparable part of every educational situation (Gordon, 1988). Martin (1976) claimed, “The hidden curriculum is composed of learning situations that are visual or non-visual, but the students are not aware of” (p. 144). This means that the intents are not stated overtly and they are unknown to the students and the teachers. According to Martin’s (1976) definition, “The hidden curriculum includes the products or by-products of what occurs in school or in the environment outside of school, especially things that are taught unintentionally” (p. 137). It is customary to see the main messages transmitted via the hidden curriculum in the field of values, attitudes and beliefs (Ben Peretz, 1995).

### *The null curriculum*

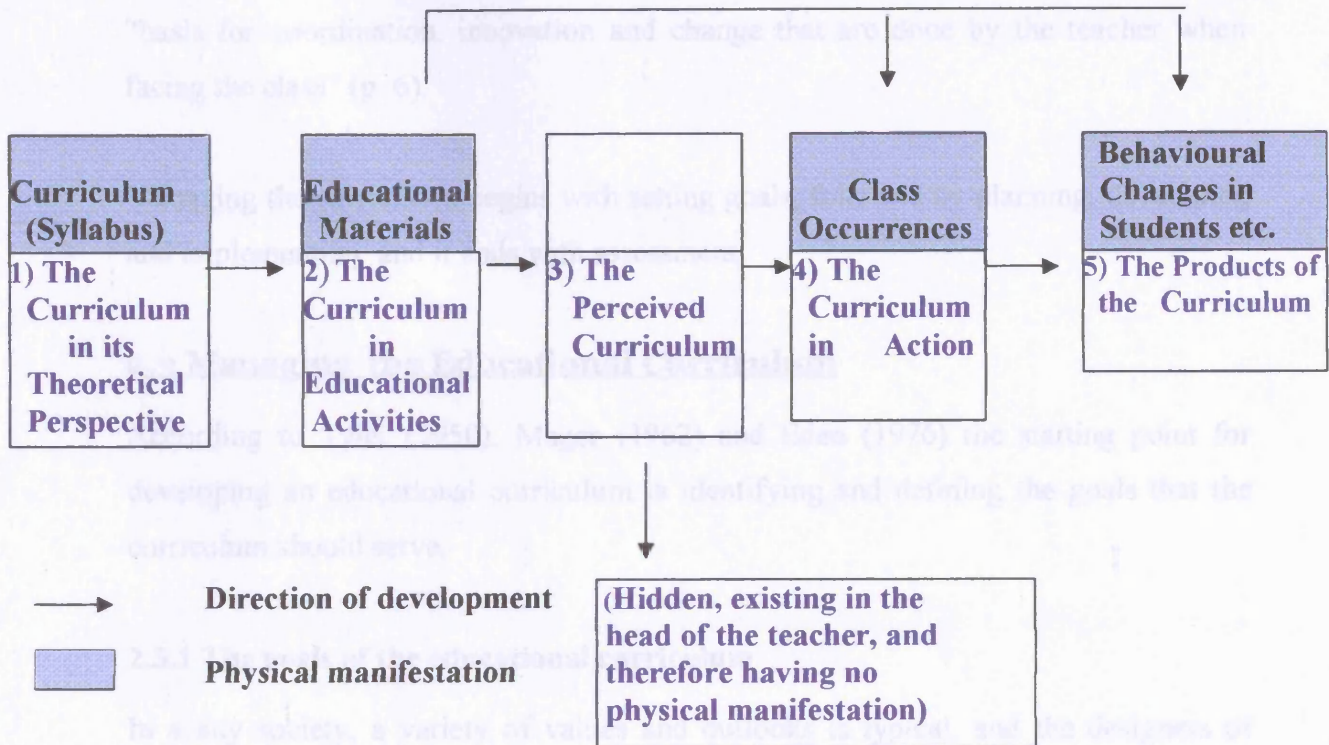
This is a curriculum that relates to contents, intellectual processes and values that remain outside the educational curriculum. Discerning this curriculum is important in the context of the concept of curricular potential (Connelly and Clandinin, 1988). No system of study materials can include everything. Teachers must operate their consideration regarding which elements can be left out of the curriculum (Eisner, 1979). After the teacher has identified the missing elements in the curriculum, he/she can create complementary curricular elements, additional materials, and connect them to an existing curricular document.

Another way of describing the different forms of educational curricula is used by Silberstein (1984) who sees the curriculum as a multi stage phenomenon that develops from one form of expression to another.

### *The educational curriculum as developing phenomenon*

The process of developing the educational curriculum can be seen as a diverse process, affected by the outlooks and positions of those involved in its development, the needs of the different target populations and the changing circumstances of the system in which the curriculum is used. This process begins at the stage of its expression by the writers and ends at the stage of educational achievements. According to Silberstein (1984) the curriculum goes through five stages: a) the

conceptual perception of the curriculum, b) the curriculum in educational activity, c) the perceived curriculum, d) the curriculum in action e) the products of the curriculum. These stages are represented in Figure 2.1.



**Figure 2.1 The curriculum in development (Silberstein, 1984)**

NB - In the case of the teacher developing curricula and study materials, stages 1, 2 and 3 can be overlapping and simultaneous.

Goodlad *et al*, (1979) also developed a model (somewhat parallel to Silberstein's model) in which we can differentiate between five levels of "incarnation" in the life of an educational curriculum: ideal, formal, perceived, operational and experiential. The curriculum that is examined is consolidated and structured and, by nature, is not open to many initiatives on the part of the teacher.

**These models served as a theoretical frame to the educational curriculum**

In summary, in his writings on the development of the educational curriculum, Schwab (1983) emphasized the complexity of the educational curriculum. Ben Peretz,

who bases herself on Schwab, claims that the educational curriculum offers both “too much and too little” at the same time (Ben Peretz, 1995, p. 6). It contains more than the teacher can ever take advantage of but still does not include everything. She claims that the value of the educational curriculum is measured by its ability to be a “basis for coordination, innovation and change that are done by the teacher when facing the class” (p. 6).

Managing the curriculum begins with setting goals, followed by planning, developing and implementing, and it ends with assessment.

### **2.3 Managing the Educational Curriculum**

According to Tyler (1950), Mager (1962) and Eden (1976) the starting point for developing an educational curriculum is identifying and defining the goals that the curriculum should serve.

#### **2.3.1 The goals of the educational curriculum**

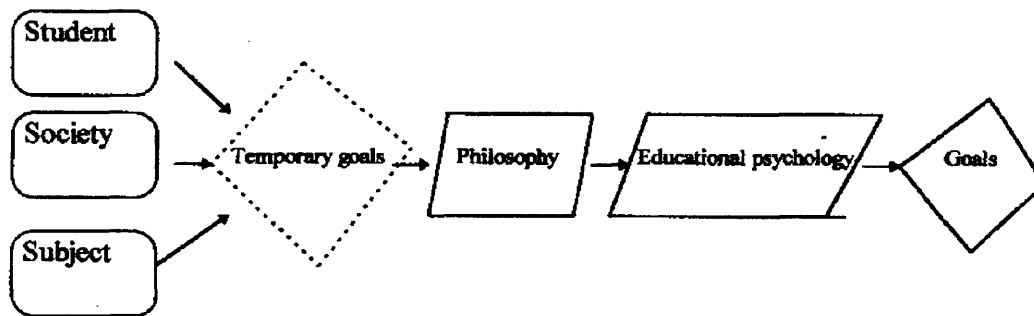
In a any society, a variety of values and outlooks is typical, and the designers of educational policy within a society will tend to translate the values of that society into the goals of education (Toffler, 1973).

##### *Definition of the goals*

One of the social goals of education is to train the student to live in the society in which he/she is educated. This includes two influences; one is directed towards transmitting the culture of the past and is typified by the static part of society, the second is to train the student to be absorbed into a changing future society and is typified by the dynamic part of society (Rotenstreich, 1964; Yedlin, 1971). Setting educational goals and planning educational activities are planning current activities. This implies a consideration of needs for the future and forecasts regarding the development of human society. The population to which the educational curriculum is directed and prepared is the population of students - their personalities and needs.

Tyler (1950) identified three sources of consideration in the process of decision-making regarding educational goals: 1) the needs of society; 2) the needs of the

student; 3) the structure of the subject. He thought that the goals should be examined and filtered in the fields of educational philosophy of values and psychology, which includes personality traits, intelligence, structure of recognition and the development of the child. The model is represented in Figure 2.2:

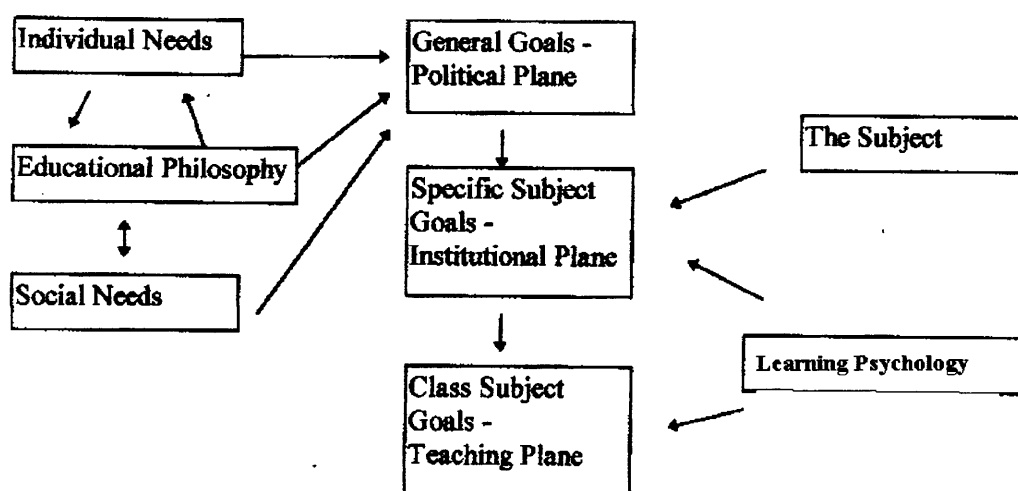


**Figure 2.2 Tyler's model (1950)**

Criticism of Tyler's model gave rise to a recommendation for other models which change the ties between the factors (Eden, 1971).

The goals of education are formulated in certain societies by the legislature or by an authorized body and they include traits stemming from their political background. They usually ignore topics that are under debate and they are formulated in such general terms that they can be interpreted in different ways. Goals that merit high rates of acceptance can be seen as goals that are appropriate because they represent accepted values in society (Eden, 1976).

In their writings on planning and developing the curriculum, Goodlad *et al* (1966) divided the decisions on educational goals into three planes: the policy plane - the government; the institutional plane - the educational curricula planners; and the teaching plane - the teachers. According to Eden, this model for planning the curriculum can be applied nationally, based on Tyler's model, and it may be possible that Goodlad *et al's* model (1966) can be combined on the level of goals as represented by Figure 2.3.



**Figure 2.3 Eden's model (1976)**

The goals of education in Israel were formulated in the Law of Public Education in 1953. The aim was to base elementary school education in the State on the values of Israeli culture, the love of the homeland, loyalty to the State, the nation of Israel, and the desire for a society based on freedom, equality, tolerance, mutual help and love of mankind (Section 2, Law of Public Education, 1953, Israeli Knesset). In this law, the central and general goals of education were translated into functional operative goals.

The formulation of the general goals on the level of the legislation leads to:

- 1) flexibility which allows free interpretation suited to changing conditions,
- 2) encouragement of initiative which guides teachers' actions towards creative self-expression,
- 3) social integration that provides a basis for common values.

The goals of education can be classified into three types: an overall goal, a designated goal and a behavioural goal.

### *Types of goals and their formulation*

The goals differ from each other in their formulation, degree of detail regarding the expected change in the student, and in the educational purpose that they serve.



1. Meta-goals or overall goals are goals that cite overall and general results of teaching or any other educational activity, and do not transmit detailed information guiding anyone in what he/she must do in order to fulfil the goal. In Israel, the policy-makers determine the goals: the Minister of Education, the Knesset, the Pedagogic Secretariat and universities. The goals are few in number and are formulated in overall terms with a broad meaning. They express overall expectations, which are formulated by statements that present social values and human ideas, and they are the infrastructure for determining goals on the designated and behavioural level.
2. Designated goals are goals that clearly state the results of education in relation to a certain field. They are attained over many years of study and via integration of many subjects. They are more detailed but they do not determine what the student must do. They are unique, defining a product of study including target population. There are many of these goals and they sometimes express different viewpoints. The goals are decided by the heads of educational systems and the organizational system: the curricular centre, teaching committees, department managers and training managers. These goals are a mediating factor between the overall goal and the behavioural goal.
3. Behavioural goals are unique and relate to a defined field. They are formulated with precision and with a list of the educational results that are expected from the viewpoint of teaching the student. The emphasis moves to the student and to the change that will take place in him/her. They describe expected behaviour of a student and they note the conditions for the existence of the change (Kibler, 1970; Cox, 1971). These goals are determined by the curricular writers or by teachers and instructors in educational institutes.

In the professional literature, one can find two different approaches regarding the place of goals. One determines that without predetermining goals there is no way to examine results (Mager, 1962). The second does not find a need for necessarily determining ahead of time because there is no way to predict the results of educational activity (Eisner, 1967).

Eisner (1967) claimed that: a) the results of the teaching process are so many and varied that there is no possibility of detailing them ahead of time in terms of

behaviour and content; b) in certain subjects it is difficult to determine goals; c) most of the results of teaching cannot be logically/quantitatively measured; d) educational goals do not have to precede the choice and organization of the content. Eisner did not oppose formulation of educational goals but warned against exaggerating their value.

On the other hand, Hastings (1967) claimed that: a) there are known goals that it is preferable to formulate in operative terms; b) the difficulty in formulating goals in a number of subjects should not create a rule for other subjects; c) any evaluation can be done in quantitative and qualitative terms, and determining goals does not require the use of only quantitative terms; d) the goals can be changed while developing educational activities and there is no need to determine goals at the beginning of the process.

At a later date Eisner (1967) compromised and developed two types of educational goals that can be determined in educational planning: 1) teaching goals that clearly cite the special behavioural skill or item of information that the student must acquire after completing an educational activity; 2) expressive goals that describe educational coping.

Since each type of goal requires different activities in the educational curriculum and different evaluation processes, each one of them has its own place in the theory of educational curricula and in their development.

### **2.3.2 Planning**

Educational planning is a series of actions over which choice, placement, production and evaluation of educational products and means to attain them are examined in light of a prediction of social desires - some the result of basic values and some wishes that have cropped up as a result of current problems and conditions that the school is subordinate to...  
(Shremer, 1993, p. 15).

Planning means choosing actions that suit situations that have not yet occurred (Lamm, 1974). According to Taba (1962) and Holt (1979), a division of authorities begins with principle decisions on a national level and goes down in detail to the level of the teacher. Jackson (1980) claims that the involvement of the stakeholders at all

levels has to be "in the first stages of planning ...throughout the life of the programmes" (p.10).

There are three basic questions that the curricular planner is concerned with: goals - how will goals be decided?, means - how will means be chosen?, and evaluation - what are the sources for consideration determining decisions? At the stage of recommending curricula, or before, goals and principles of the curriculum are determined. The assumption is that the goals of the planned system are familiar to the planner (Chen and Guri, 1978).

Since the planner also has ideas, a way of life, outlooks and philosophical approaches, these will be expressed in planning the curriculum. When starting to plan the curriculum, the planning system has to show the priorities among the factors and principles that must be considered. At the centre are organizational questions such as: 1) around what centres will the activities of the curriculum be organized?, 2) what about the desired scope?, 3) how will the order of the programmes and educational experiences be treated?, 4) how will different areas of knowledge be integrated? (Taba, 1962).

There are four stages in the process of curricular planning: 1) the syllabus stage, 2) the stage of constructing didactic continua, 3) the stage of methodical operations, and 4) the feedback stage (Lamm, 1974).

Developing educational curricula is one of the most dynamic topics in education. Most curricula projects worldwide began under the assumption that, in developing educational curricula, a change and improvement would be attained in the teaching/learning process in schools.

### **2.3.3 Development and implementation of the educational curricula**

Developing educational curricula is a process that concentrates on translation of planned educational ideas into educational activities and study materials for use by teachers and students (Shafriri and Sabar, 1979).

The central problem for the team dealing with developing educational curricula is the choice of topics. Once the study content has been chosen, actions begin for organizing the material according to the principles of organizing topics, determining the teaching strategies, developing educational aids, training programmes, evaluation and measurement means, and experimental operation (Chen and Guri, 1978). After preparing the educational activities and deciding on the study materials, the teacher concentrates on what strategies/methods to use in class.

Now begins the implementation stage. Until the end of the 1960s, more attention was aimed at the development stage and less towards operational stages (Shafriri and Sabar, 1979). However, this stage is an inseparable part of the process of planning and developing curricula (Eden, 1978).

The process of operating and applying curricula in Israel is divided into three stages:

- 1) the design stage, 2) the experimental stage, 3) the operation stage that includes:
  - i) distribution of the material (Levy, 1974),
  - ii) training teachers and organizing teacher training in order that they will:
    - a. recognize the curriculum, b. understand its principles, c. become a creative, autonomous and involved teacher, d. use strategies via which the curriculum will be transmitted (Eden, 1978; Chen and Guri, 1977).

The need to establish models for teacher training stems from: a) rapid changes that increase the rate of turnover of curricula and require constantly developing curricula for changing conditions, b) the increased interest in improving education and the efficiency of educational curricula (Doron, 1980), c) suiting the material to the student population, d) determining the curriculum. According to Connelly (1972), teachers must be given a number of alternatives from which they may choose what is most suitable for them.

The beginning of the process of managing the educational curriculum is in planning, continuing with development and ending with operation and application. The desire accompanying the process is to reach significant teaching achievements and educational products (Eden, 1983). This wish is related to the ability to examine the

value and the quality of the curriculum that, according to Silberstein (1992), depends on the quality of the accompanying evaluation processes.

Lamm (1992) claims that, “In educational activity, teaching and evaluation are intertwined, and one cannot exist without the other” (p. 8). The objective of evaluating curricula is to examine its efficiency and effectiveness and to judge its actual degree of success and achievement.

#### **2.3.4 Evaluating educational curricula**

The main goal of evaluation is to evaluate, direct and design teaching (Levy, 1998).

Many researchers express their opinions/views about the need for evaluating the educational curricula. Bloom (1958) classified the goals of education into six categories according to a graduated order from the simple to the complex. The highest category is evaluation because he thinks that it combines all of the existing behaviours of the previous categories. Therefore, the goal of evaluation is to ensure that the curricula are operated and teachers are guided to the desired results. There are those who think that without defining goals by curricular developers, one cannot perform evaluation (Orpaz, 1978), because the evaluation role is to examine if goals have been achieved (Tyler, 1950; Provus, 1971). According to Renzulli and Callahan (1978), the major purposes of educational evaluation are to provide feedback to all consumers of evaluation who are involved in the operation of the educational system: supervisors, principals, teachers, students and parents (Orpaz, 1978), on whether “the goals and objectives are being met and the reasons for success or failure in meeting them” (Renzulli and Callahan, 1978, p. 1). Only after the goals have been identified, can decisions be made about the available evaluation tools in order to designate to what degree they can serve the evaluation goal (Tyler, 1950; Eden, 1987).

#### *Definition of the concept of evaluation*

Evaluation as a general concept has different meanings and many definitions (Levy, 1980): these include; the degree to which the goals of education are actually achieved (Tyler, 1950), providing information to decision makers (Cronbach, 1963; Alkin, 1969, 1970; Stufflebeam *et al*, 1971; Harlen, 1980; Aspinwal *et al*, 1992; Robson,

1993), determining the value or worth of something (Scriven, 1969; Glass, 1969; Stufflebeam, 1974; Eisner, 1979; House, 1980), an activity including description and judgment (Stake, 1967; Guri, 1978; Guba and Lincoln, 1981; Nevo, 1992). Cronbach *et al* (1980) rejected the judgmental character of evaluation and defined it as a methodical examination of events that take place in a plan.

The concept of curriculum evaluation has been defined as, "Clearly the process by which we attempt to gauge the value and effectiveness of any particular piece of educational activity..." (Kelly, 1989, p.187). Educational evaluation is perceived as providing information about all areas of action in education in order to improve the educational system and make it more efficient (Silberstein, 1992). West-Burnham (1994) agreed with this outlook and added that usually evaluation is seen as, "an internal or external formative process to provide feedback on the total impact value of a project or activity" (p. 158).

In the educational system in Israel there are two central outlooks to the concept of evaluation. One is carried out by/through outside authorities - the external evaluation. The second has been applied in the past decade on the school level, focusing on individual and local needs - the internal evaluation. This is under the control of teachers and school administrations (Nevo, 1998).

In order to decide on the value of something, one must use criteria for judgment. Choosing criteria to use in evaluation is one of the most difficult tasks in evaluation of education (Eden, 1987).

### *Criteria for evaluation*

The question is asked, who are the determiners of the criteria, the professionals, the research staff, or the teachers? The individual must be aware that others in the same educational environment have different values, opinions and attitudes that have an impact on work in school. These values can be the attitudes of the stakeholders: supervisors, principals, teachers, students or parents. Evaluation takes place in the planning, development and operation stages of the curriculum, and the information gathered in these stages is examined according to practical and scientific criteria. The evaluator must maintain a balance between them because evaluation actions that do



not stand up to practical criteria will provide information which contributes little; and information that does not stand up to scientific criteria may be unreliable and invalid (Orpaz, 1978; Boruch and Cordray, 1980).

When we aim to plan curriculum evaluation there is a need to identify a specific series of problems and issues for those who are responsible for a programme and are interested in receiving information. According to Nevo (1986), there are four foci in the evaluation: goals, action plans, performance and results. On the other hand, Eden (1983) gives a list of foci that include: basic assumptions, coordination of aims and needs, examination of learning activities, morphological and content traits of the study material, technical aspects, level of difficulty, values, unintended side effects, and acceptance of the curriculum by the teachers.

It is customary to differentiate between two types of evaluation using terms coined by Scriven (1967): “formative evaluation” and “summative evaluation”.

### *Types of evaluation*

The differentiation notes the two important different roles of evaluation (Nevo, 1986):

1. providing feedback to the curricular writers regarding changes that may lead to improvements in a certain curriculum,
2. providing a basis for educational authorities to choose the educational curriculum for use in a particular situation.

The first role he called the “formative” role and the second the “summative” role. According to him, both of them are equally valuable and one cannot replace the other. In formative evaluation, the evaluator will be asked to present evaluations regarding different parts of the curriculum according to criteria that describe its characteristics. This is the place for correction and improvements in the curriculum. When defining summative evaluation, Scriven claimed that the evaluator must reach general judgments about a certain curriculum. These judgments must relate to the curriculum as a whole unit and be based on a combination of a number of criteria. At this stage, no changes will be made in the curriculum.

Bloom *et al* (1971) expanded the meaning of these terms to include evaluation of the students' learning and the performance of the teacher. According to Bloom, "formative evaluation" is the evaluation activity, whose results form the basis for recommendations for corrective treatment. On the other hand, "summative evaluation" is evaluation whose role is to attain judgment regarding something that cannot be changed.

In summary, the role of "the former" contributes to forming or improving the curriculum and the role of "the summarizer" provides results that can serve educational authorities or students in choosing an educational curriculum.

Educational evaluation requires at least two tests: one at the starting point and one at the end, in order to examine if and to what degree changes occurred in students' behaviour over time.

#### *Evaluation in the stages of planning, development and application*

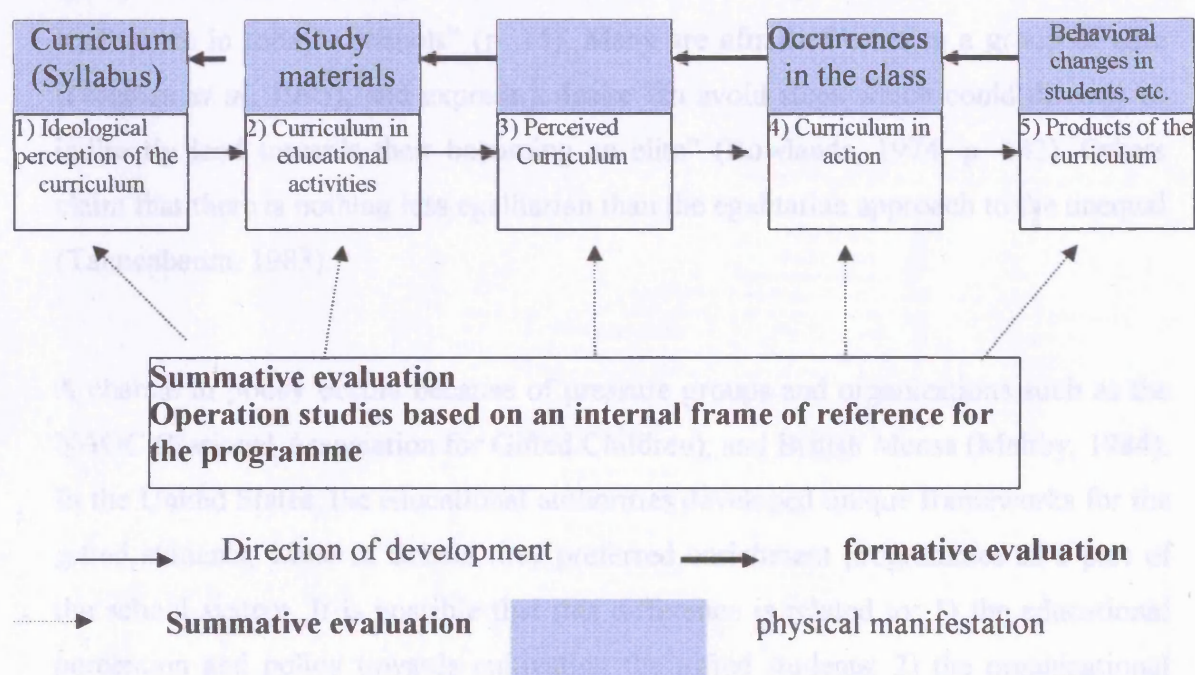
Evaluation starts at different times. The earlier it appears in the development process the larger its contribution to designing the curriculum (Scriven, 1967). In the best situation, evaluation accompanies development work from its inception and continues after the completion of the curriculum for as long as it is in use in schools.

Every element related to planning, development and application of curricula could be a topic of evaluation (Nevo, 1986). The sources of the topics can be organized according to the following elements: 1) input elements - investments in curricula, participants and conditions aiding learning, 2) process elements - the teaching and learning processes, and 3) output elements - the results or the achievement (Orpaz, 1978).

The results received from the evaluation tools provide an analytical profile. The same data must be comparable to those that were received earlier in order to be able to determine which changes occurred; if there was in fact progress or improvement in the programme, in the learning process and in teaching methods, and where changes must be made in order to achieve an effective educational curriculum (Levy, 1976).

### 2.3.5 Summary of data, analysis of results and conclusions

The tools that are used to gather the data can characterize the nature of evaluation data. It is clear that there is an advantage to evaluating a curriculum from the viewpoints of a number of different people in the evaluation team and that they should have a close tie with the development team at all stages (Nevo, 1986). After recording the evaluation report there is an ongoing process, including renewed planning, renewed development and re-evaluation (Tyler, 1950; Shapiro, 1984), through the five stages of the curriculum as shown in Figure 2.4.



**Figure 2.4 Formative and summative evaluation of a curriculum in development (Silberstein, 1984)**

In summary, evaluation is presented as a continuous process, which includes the stages of planning, performance and summary in the teaching/learning situation and relates to the common objects in education: teachers, students, study materials and the educational environment.

The topic of this study is managing the curriculum in the enrichment centres for gifted students through perceptions of stakeholders.

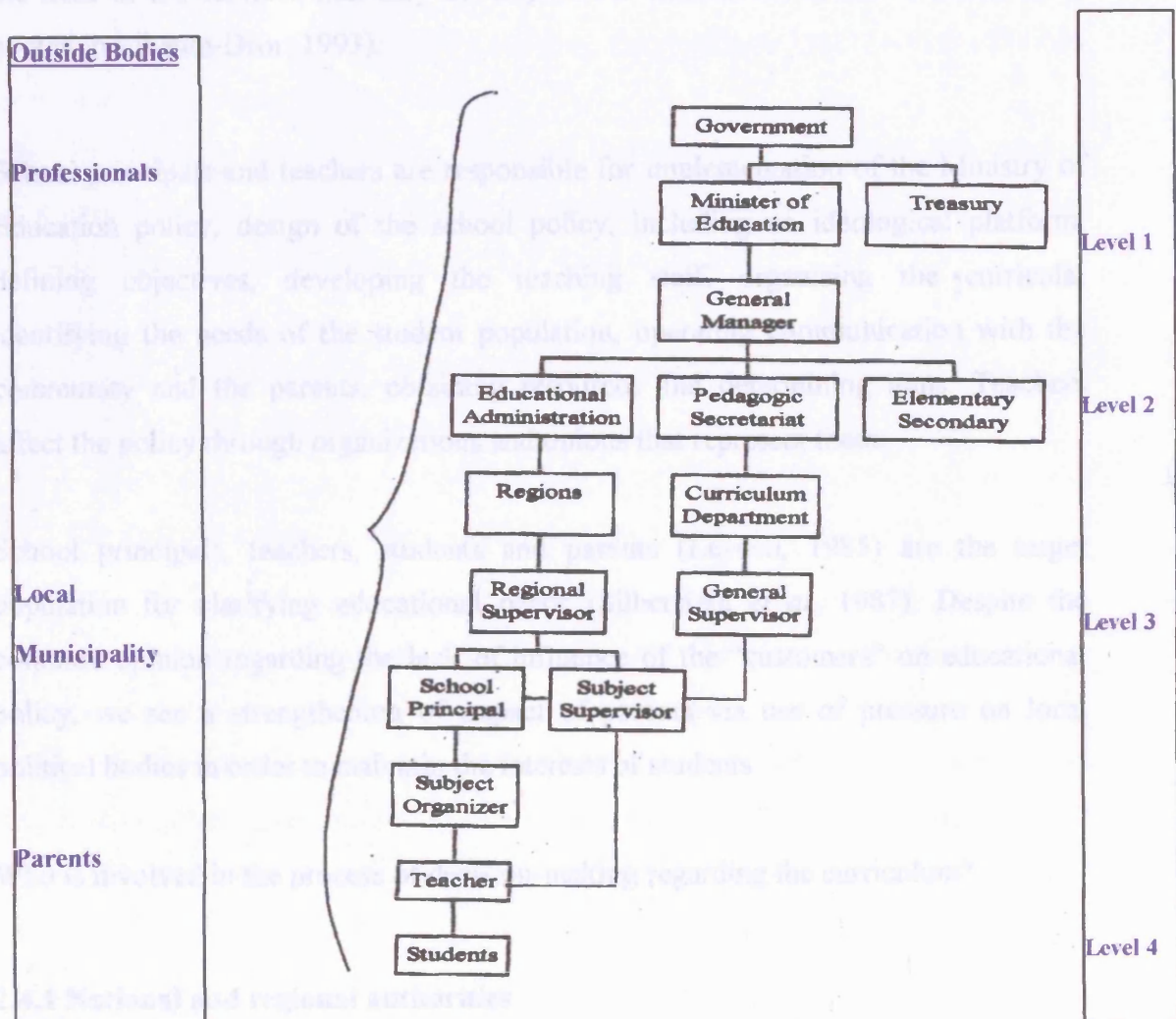
## **2.4 The Stakeholders**

The curricula that are transmitted in the enrichment centres are not operated in a vacuum. Around them there is a system of: values, society and culture, policy and political considerations, community interest, an educational system including schools, principals and teachers, and the family unit including parents and students – the stakeholders. Relating to the gifted students has created a mutual system of relations in which the needs of society and the needs of the gifted students are interrelated. According to Denton and Postlethwaite (1985), teaching the gifted students is vital for the needs of society and it “has the duty to meet the particular educational needs” (p. 1). Davis and Rimm (1985) determine that “society also benefits: tomorrow’s leaders are in today’s schools” (p. 15). Many are afraid of creating a group of elite (Freeman *et al*, 1995), and express a desire “to avoid steps which could directly or indirectly lead towards their becoming an elite” (Rowlands, 1974, p. 142). Others claim that there is nothing less egalitarian than the egalitarian approach to the unequal (Tannenbaum, 1983).

A change in policy occurs because of pressure groups and organizations such as the NAGC (National Association for Gifted Children), and British Mensa (Maltby, 1984). In the United States, the educational authorities developed unique frameworks for the gifted students, while in Britain they preferred enrichment programmes as a part of the school system. It is possible that this difference is related to: 1) the educational perception and policy towards cultivating the gifted students; 2) the organizational structure of English comprehensive schools compared to public and private schools in the US; 3) the budgets transferred to schools in the US for cultivation programmes under the instructions of the federal government, compared to England which has left the financial issue in the hands of interest groups (Freeman *et al*, 1995).

In Israel the degree of interest that the Prime Minister shows regarding educational issues, the political power of the Minister of Education and his relations with the Prime Minister and the Minister of the Treasury are the main factors determining the impact and treatment of the government of educational policy. The educational system has a centralized structure (the country is divided into six regions, they are an operational extension of the main office); and policy considerations, that include political factors, are on a national level. (Barbe and Renzulli, 1975; Davis and Rimm,

1985). The educational policy - its design and consolidation - are determined in the Ministry of Education by the Minister, his deputy and general manager who are called "policy entrepreneurs". The Pedagogic Secretariat, which was supposed to determine policy regarding education, lacks validity in its decisions and acts mainly as a coordinating body. In recent years, the Ministry has tried to increase decentralization and to transfer authority to the regions in order to allow autonomy in decision-making (Elbaum-Dror, 1993), as shown in Figure 2.5.



**Figure 2.5 Policy levels in decision-making (Guri, 1978)**



The model shows the decisions in general principles that are translated in different focuses and then move down into the details (Holt, 1979). The interests of the community (Scheifele, 1953) are related to the local authorities, its priorities and its attitude towards the educational system. The Ministry of Education, carrying responsibility for designing educational policy, perceives the local municipalities as interest groups that wish to expand their impact through receipt of government resources. The guiding principle determines that the municipalities are an operational body and not a policy-making body. Their freedom of decision is expressed only in the field of the services that they develop in the educational system (Weiss, 1972, quoted in Elbaum-Dror, 1993).

School principals and teachers are responsible for implementation of the Ministry of Education policy, design of the school policy, including an ideological platform, defining objectives, developing the teaching staff, organizing the curricula, identifying the needs of the student population, operating communication with the community and the parents, obtaining resources and determining aims. Teachers affect the policy through organizations and unions that represent them.

School principals, teachers, students and parents (Leyden, 1985) are the target population for clarifying educational needs (Silberstein *et al*, 1987). Despite the common opinion regarding the lack of influence of the “customers” on educational policy, we see a strengthening of impact of parents via use of pressure on local political bodies in order to maintain the interests of students.

Who is involved in the process of decision-making regarding the curriculum?

#### **2.4.1 National and regional authorities**

Educational authorities, such as The Ministry of Education, the Pedagogic Administration, Public institutes that give their patronage, (Davis and Rimm, 1985) the regional educational departments, supervisors, teachers’ organizations, the local educational departments and the school principals, all have great power, influence and considerable responsibilities to plan, implement and evaluate the curricula that are offered to the students (Eisner, 1985; Hass, 1987). Rimm (1977, quoted in Davis and



Rimm, 1985) claims that in the hierarchy of those who accept responsibility, the higher one progresses up the ladder, the higher the demand for information.

There are some levels of curriculum decision-making:

The national level that includes guidelines and principles (pedagogic administration).

The academic level which is defined as the scholars at colleges and universities.

The societal level which includes organized groups who would like to influence the curriculum (the political level).

The formal level, the educational centres.

The regional level which deals with translating the principles into practical solutions (supervisors and teachers' organizations).

The institutional level, the local school level that translates guidelines into detailed programmes and the schools' development curriculum (local educational departments and school principals) (Goodlad *et al*, 1979; Eden *et al*, 1992).

One of the stakeholders is the teacher, who chooses the autonomous path in developing his curriculum in the enrichment centres.

#### **2.4.2 The teacher's place and involvement in the curriculum**

The desire to improve and to clarify the status of the teacher in the process of curricular planning continues to occupy those who determine educational policy. There are those who argue for the merit of operating the rational approach, which places limits on the teacher's autonomy (Harpaz, 1982) and there are those who recommend allowing the teacher to decide what he/she prefers to do, independently, and what he/she wants to be aided by from outside bodies (Ben Eliyahu, 1982).

“The image of the teacher and his place in curricular planning are greatly derived from the definition of the phenomenon of the educational curriculum and the perception of the essence of the planning process.” (Silberstein, 1984, p. 123)

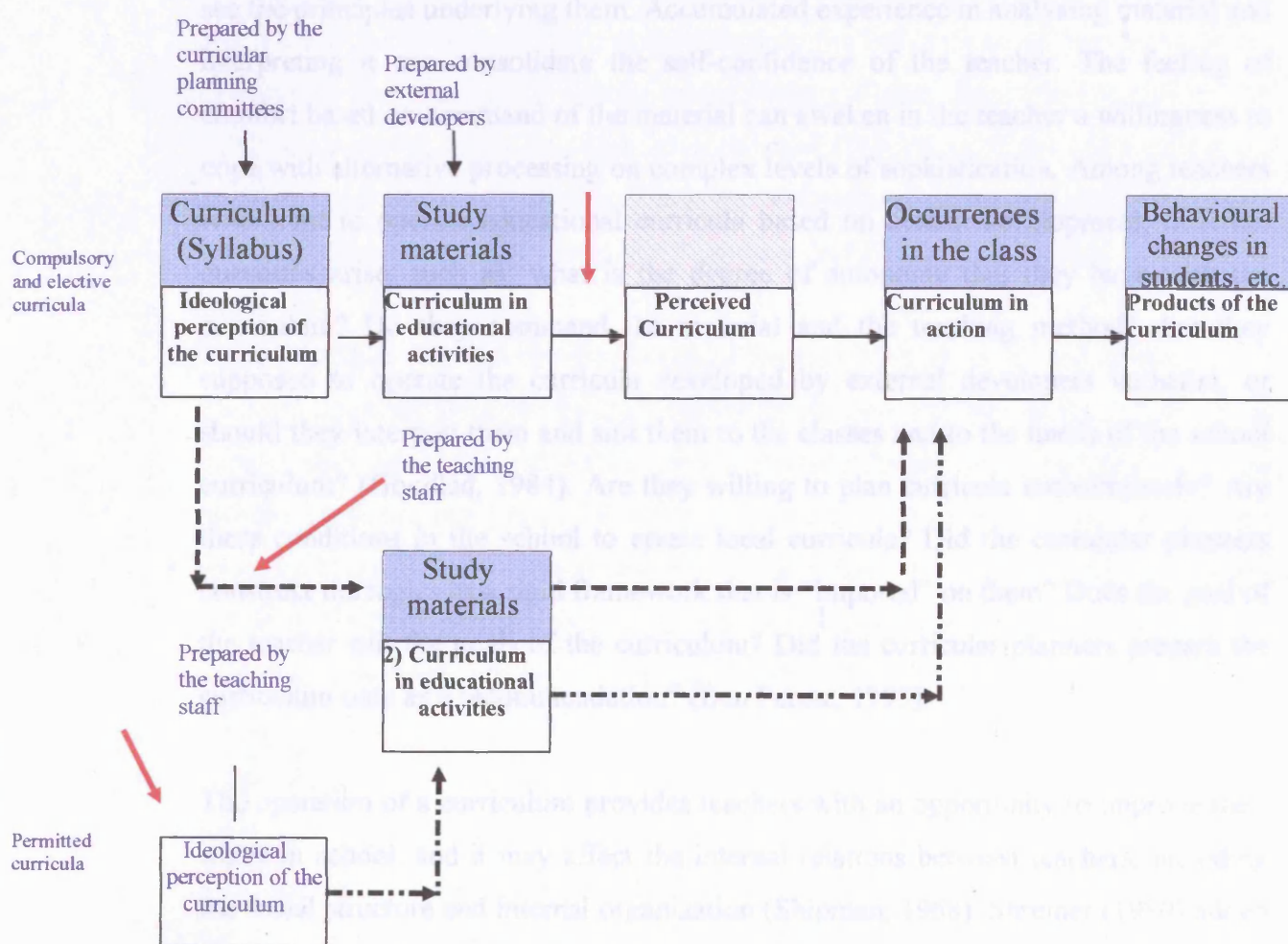
##### *The image of the teacher*

The concept of the teacher's image, in the context of perceiving the essence, development and operation of curricula, has a decisive impact on determining his/her

place in planning studies (Shremer, 1980). From this perception derives the expectations that the curricular writers have of teachers, who must teach their students according to the developed curricula. The image of the teacher who is called a “wise consumer” (Silberstein, 1984, p. 108) of the curriculum or that of the independent teacher who plans studies independently, will determine the list of the skills that should be cultivated in teachers, and the lines of operation that should be taken in training them to plan curricula (Silberstein, 1984).

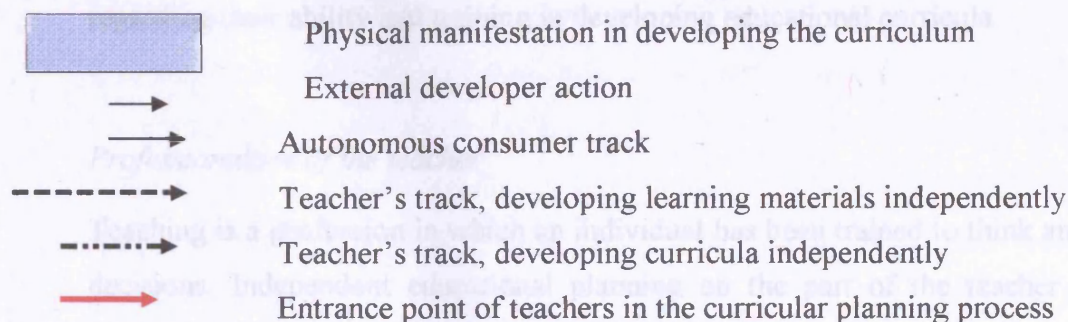
The alternative images of the teachers are:

1. The autonomous consumer teacher.
2. The teacher who develops study materials.
3. The autonomous teacher who develops educational curricula, as shown in Figure 2.6.



**Figure 2.6 Three tracks of autonomous teachers (Silberstein, 1984)**

## Key



Ben Peretz (1995) claims that in order to raise self-image, teachers must act as autonomous factors that operate curricula by making changes and adapting the given material.

The teacher requires intellectual resources in order to understand the curricula and to see the principles underlying them. Accumulated experience in analysing material and interpreting it can consolidate the self-confidence of the teacher. The feeling of comfort based on command of the material can awaken in the teacher a willingness to cope with alternative processing on complex levels of sophistication. Among teachers who want to operate educational curricula based on central development, different questions arise, such as: what is the degree of autonomy that they have with the curriculum? Do they command the material and the teaching method? Are they supposed to operate the curricula developed by external developers verbatim, or should they interpret them and suit them to the classes and to the needs of the school curriculum? (Goodlad, 1984). Are they willing to plan curricula autonomously? Are there conditions in the school to create local curricula? Did the curricular planners construct the topics as a rigid framework that is "imposed" on them? Does the goal of the teacher suit the goals of the curriculum? Did the curricular planners prepare the curriculum only as a recommendation? (Ben Peretz, 1995).

The operation of a curriculum provides teachers with an opportunity to improve their status in school, and it may affect the internal relations between teachers, including the social structure and internal organization (Shipman, 1968). Shremer (1980) added that an aspect of social status and the place of the teacher in the school staff are what affect his/her openness and willingness to change.

The professionalism of teachers, their expertise and experience are points of debate regarding their ability and training in developing educational curricula.

### *Professionalism of the teacher*

Teaching is a profession in which an individual has been trained to think and to make decisions. Independent educational planning on the part of the teacher will have positive results in increasing professionalism. Cultivation of the profession aims to increase the teacher's commitment to his/her work (Eden *et al*, 1992).

Recognition of this capability may contribute to the teacher increasing his/her professional authority in the eyes of students and their parents. The argument that developing educational curriculum is considered part of the work of the teacher raises the question: Are teachers themselves interested in this activity? (Eden *et al*, 1992). Rudduck (1987), claimed that teachers cling to the instructions of the curricula not because of their lack of desire to make pedagogic decisions, but because of the following reasons: 1) teachers lack interpretive skills because of lack of training and appropriate experience; 2) teachers lack knowledge in planning related to developing professional expertise in the field of educational curricula.

There are those who see the preference of teachers to cling to the recommendations made to them as trust in the educational developers and the textbook writers as experts with valid knowledge (Ben Peretz, 1978). Another interpretation determines that the topics and ideas included in the curriculum are comprehensive and there is no room for the teacher to expand beyond what is written. On the other hand, there are opinions that claim that teachers have the ability to develop curricula, formulate goals, choose curricula and write and design them. (Shafriri and Sabar, 1980).

Discerning between know-how of professional experts who are not teachers and between knowledge of those who deal in teaching the subject should reinforce the argument that teaching a subject is a complex role that requires varied skills beyond the disciplinary knowledge (Shulman, 1986).



### *The importance of pedagogy*

At the beginning of the 1960s, preference in curriculum development was usually given to considerations and rationale taken from the field of the structure of knowledge and the subject. It was accepted that the goal of education in school was to transmit the best subject matter on culture to the students (Allport, 1990). Most of the curricular development teams were composed of professionals, but many of them lacked experience in teaching and some of them did not even recognize the unique problems of the teaching-learning processes (Sabar, 1977).

Teachers tend to accept external demands when it involves making organizational structural changes. However, when dealing with pedagogic changes that deal with what occurs in the class, the content of the lesson, or teaching methods, teachers stand up for their professional right of decision making and they give personal interpretation to the demands made of them (Brown and McLuntrye, 1982). Unlike an expert in the subject, the teacher must maintain a broad outlook of the subject and relate critically to ideas. They must understand the goals of teaching and the topics with regard to their importance for the development of the student. This knowledge is the key to understanding pedagogy (Berliner, 1986) in order to create new teaching patterns in the class (Eylon, 1998). The pedagogical content knowledge has three sources: 1) educational research in the field of teaching; 2) educational curricula that exist in every subject (Elbaz, 1981); 3) the accumulated experience of teachers and educators. Shulman (1987) calls this "wisdom of practice" (Sherman, 1980; Shulman, 1987, Bereiter, 1992).

Bernard Shaw expressed a cynical opinion about the teaching profession: "Whoever can, does, and whoever cannot, teaches". Shulman came out against this perception and explained the great complexity of the knowledge that the teacher needs. At the end of the process, the teacher is required to create new understanding of the topic, the student and the process. This understanding can be an opening point for improved teaching and planning in the future (Allpert, 1990). This claim that the teacher needs both disciplinary knowledge and pedagogic knowledge led Shulman (1986) to change Shaw's negative statement and to recommend a new version – "Those who can do - and those who understand teach".

“External developers” have the appropriate resources of knowledge; expertise, time and other means for developing pools of study materials.

### *Teachers’ activities and external professional bodies*

The teachers, the “developer users”, who know the teaching circumstances that they work under and are interested in expressing their educational-personal outlooks, will translate the study materials into teaching programmes (Silberstein and Ben Peretz, 1979). Connely (1972) recommended that the developers of the curricula should describe how to apply the curriculum under different teaching conditions, from which the teacher-user will choose the parts that suit them (Silberstein, 1980). According to this approach, teachers are perceived as determining the quality of the material (Giroux, 1988) and as creating teaching situations suiting the topics to the needs of the students, within the framework of the boundaries set by the curricular planners (Silberstein, 1980, 1984). These teachers were called “curriculum adapters” (Fullan and Pomfret, 1977). Attentiveness to the considerations of the planners and the possibilities of choice that they have, allows teachers to work as autonomous decision makers.

From a theoretical viewpoint, one can also see teachers as a “tool” for fulfilling the intents of the developers but this approach may limit their motivation to make changes in order to suit the material. They can interpret the curricula but they are not allowed to rewrite them (Ben Peretz, 1978). Another way to describe the place and status of the teacher in educational planning is to define relationship between the teacher and the innovators of the educational curriculum as a power struggle and stress (Mann, 1976).

On the other hand, there are approaches that attempt to integrate teachers’ activity and professional experts, to create cooperation via functional division of the decision-making processes (Connelly, 1972). According to Rudduck (1987) there is a need to find a way to include teachers in the considerations that led the planner in order to allow them to relate to the curriculum in a critical fashion. New information in the field of educational planning should be directed to the teachers in order to establish educational dialogue between the planner and the teacher (Eylon, 1998).



In recent years there has been a feeling in circles dealing with educational planning that developing curricula by professional bodies does not satisfy all needs. Mainly because some are not familiar with the teaching-learning process which occurs in the class and lack the pedagogical dimension of suiting the content, study materials and teaching methods to the class situation (Connelly, 1972; Eden, 1978; Harlen, 1979).

### *The autonomous teacher*

"Dumping" of the curriculum on schools by professional external bodies, with the role of the teacher limited to perform the intents of the writers, has been proven as an ineffective and undesirable method of implementing educational and pedagogic innovations (Tamir, et al 1979; Connelly, 1972; Silberstein, 1979; Shafiriri and Sabar, 1979). As a result, many have come to realize that the teacher must be autonomous regarding "decision situations over which they must take a stand" (Lamm, 1974, p. 19).

The concept of autonomy was offered by Avinun (1978) as a legitimate goal of education and as a response to teachers' interests to motivate them to be actively included in developing the curricula. This trend has changed the attitude which had ordained that the teacher has no part in designing the curriculum - the "teacher proof curricula" (Ben Peretz, 1978). Educating the teacher towards new behaviour and releasing him/her from accepting external curricula have also been perceived as part of the process of reinforcing the autonomy of the teacher and encouraging educational initiative (Inbar, 1974). The autonomous teacher who develops curricula gives practical and personal meaning to teaching in the class (Eylon, 1998).

Those who support the right of the teacher to develop educational curricula (Silberstein, 1978, 1984; Regev, 1974; Shafiriri and Sabar, 1979, 1980; Sherman, 1980; Ben Peretz, 1995) emphasize: 1) the value of democracy; 2) cultivation of the profession; 3) cultivation of creativity; 4) the value of the natural tie to the local environment. In their opinion, teachers who enjoy professional freedom show responsibility, initiative, motivation, excitement and commitment (Silberstein, 1984).

On the other hand, critics claim that teachers do not have tested knowledge. An extreme form of this criticism was that of Popham (1975), a supporter of structured

study materials. He claimed that their considerations in decision-making are random and not methodical, and the quality of their products is inferior (Eden *et al*, 1992). Rudduck (1987) also has doubts regarding the intellectual precision of the study materials created by the teacher and Harlen (1979) added that the study materials developed by teachers are not accessible to other teachers. These doubts are also expressed by educational planners in Israel (Lewy, 1985).

Dewey (1960) claimed that all education is a process of involvement on the part of all of the partners - teachers, parents and students. This is a dynamic process in which all the participants must take part in the dialogue of the decision-making process. The status of the parents as possible partners in the educational system raised the discussion about their involvement.

#### **2.4.3 Parental involvement in schools**

The foundation for parental involvement is based on the right of parents to affect their children's education (Dewey, 1960; Horowitz, 1990; Noy, 1990).

In Israel since the 1980's an atmosphere is developing that encourages citizens to express their opinions regarding the service given to them by the government authorities and public institutions. As a part of this atmosphere, more parents and parents' committees are aware of their right to affect school policy. (Zidkiah, 1988, p. 229)

The roots of the complexity of the relations between parents and schools are found in the history of the State. A disconnection between parents and the schools characterized the 1960-70's. At the beginning of the 1980's, changes began to occur in the establishment of experimental and community schools. In the 1990's, parents were often involved in the schools and the schools found themselves confused by this (Elbaum-Dror, 1985).

A number of factors caused the intrusion of parents into schools: budgetary cuts; a decline in the teacher's status; privatization and construction processes; and strengthening of the human rights movement. In its stated policy, the Ministry of Education supports parental involvement in school life out of recognition of their responsibility for developing the personality and achievements of their children, and

out of recognition of the need to increase parental responsibility towards the educational system. Parental involvement is supported by the General Manager's Circular document of the Ministry of Education (34/6/74), which discusses the rights, and obligations, of the parents' committees. However, along with this recognition, the policy of the Ministry presents limitations on the rights of parents to affect the system as partners in decision-making and determining school policy. (Freidman, and Bendas, 1990). The rights of parents, according to the Law of Public Education of 1973, section 8, to determine 25 percent of the curricula are fulfilled in very few institutions.

The policy of the Ministry of Education regarding parental involvement is ambivalent. It appears that the Ministry prefers that parental involvement be limited to organizational aspects, and that authority in the pedagogic field remains in the hands of the school principals and teachers. However, the pressure applied by parents for more involvement in the pedagogic field has raised the topic to the public agenda (Freidman, 1989, Freidman and Bendas, 1990). The previous Minister of Education, Mr. Yossi Sarid, in a convention in the Central Region regarding parental involvement, claimed that "in Israel, over the years, an exaggerated, centralist governmental culture has developed". Schools "belong" to the Ministry of Education instead of to the community. He claims that studies on the advantages of parental involvement (Noy, 1990, 1992; Freidman, 1989) have proven that schools have succeeded in places where the community adopted them and decided to design them in their image. Noy (1990) reinforces his words with the claim:

That the educational system encourages school to work autonomously...responding to the needs of the population... to maintain the cultural and social uniqueness of different groups of the population. Including parents in what occurs in school is a natural and unavoidable part of the process of decentralization and autonomy of schools. (p. 144)

In an attempt to define the connection between parents and schools, we can discern a number of terms. Inclusion - a concept that expresses the initiative and the activities of the authorities or professionals who are interested in involving parents in the decision-making process. Inclusion allows creating a system of ongoing and significant relations in the form of mutual ties (Elbaum-Dror, 1987; Noy, 1986). Participation - A concept that expresses initiatives of parents in involvement in the

process (Rasisi, 1993). Involvement - a concept that represent activities of parents who are outside of the system and want to affect the decision-makers and the character of decisions, relations and commitments from the outside (Noy, 1986; Freidman and Bendas, 1990). Theoreticians, who discuss parental involvement, usually focus on defining the quality of the ties between the school and the community of parents. Hazellener (1983) presents three models for possible ties:

- Home impact model - from the school to the student's home
- School impact model -from the parental home to the school.
- Community affects model - mutual ties and mutual influence.

On the other hand, Litwak and Meyer (1974) hypothesize three different models:

- The closed door - one directional communication from school to the students' home.
- The open door - cooperation.
- Balance - balance between the two models.

The literature dealing with the fields of involvement exposes a wide variety of roles that parents play (Sa'ar, 1995).

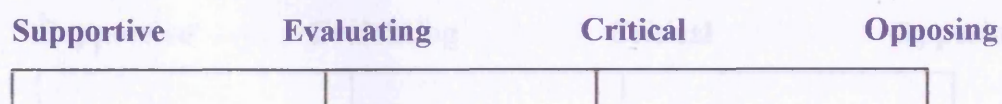
#### *Areas and levels of involvement*

Ravid (1985) claimed that there are four fields: the curriculum, teaching methods, placing teachers and choosing schools. Freidman (1989) classified three fields: school, class and home. Goldberg (1981) itemized four fields: the educational scholastic fields, the cultural social field, the mutual guarantee field and the coordination and communication field for financing resources.

Goldring (1988) and Dubovny (1993) defined three levels of involvement: low - information receipt; intermediate - parent has helped; high – decision-making related to educational policy. Petit (1980 quoted in Rasinski and Fredericks, 1989) called it passive involvement when it is dictated to parents, versus active involvement initiated by parents.

Epstein (1994) identifies five levels: parenting, communication, volunteering, learning at home and decision-making. Saxe (1975) differentiated between two

patterns of involvement: without force and powerful. Barth (1978) related to involvement as an axis.



In recent years there has been a change, not only in the quantity of parents who express their opinions overtly and demand to be involved in programmes, but also in the character of the involvement, determining the character of the school, teaching methods, textbooks, division of classes, groupings, and placing teachers (Goldberger, 1991).

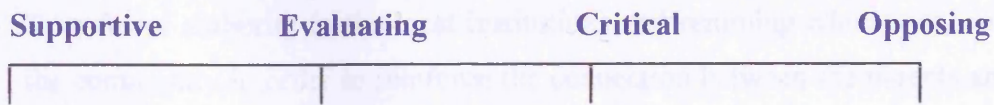
The question is: If parental involvement has positive implications for the educational system, why is there little parental involvement in schools? (Noy, 1992). Studies report on different aspects of conflict between the parents and the educational systems: 1) haziness in defining their place (Sa'ar, 1995); 2) lack of trust from both sides (Chavkin, 1990); 3) lack of meaningful and valid dialogue (Lightfoot, 1978); 4) degree of willingness of the school to allow parents to act within the schools (Noy, 1992); 5) parents who are a pressure group (Elbaum-Dror, 1985); 6) slogans of involvement that are not practical (Sa'ar, 1995); 7) the problem of distancing between the school and the community (Zorman, 1985); 8) involvement seen as an intrusion in negative terms (Barth, 1978); 9) parental worry for promoting the achievements of their children (Goldberger, 1991); 10) involvement as a means for development and self fulfillment of the parents themselves (Noy 1986); 11) parents in categories of spoilers, neglectors, new immigrants and special care groups are a problem (Freidman, 1989; Noy, 1992).

Parents are potentially both useful and disruptive, and therefore should be turned into allies of the educational systems (Noy, 1990). This can be done in the following ways:

1. The collective parental entity can be seen as a community that has common interests (Elbaum-Dror, 1987).
2. Training teaching staff to work with parents as a community of educators based on mutual respect and trust (Rasinsky and Fredericks, 1989).



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1. The collective parental entity can be seen as a community that has common interests (Elbaum-Dror, 1987).
2. Training teaching staff to work with parents as a community of educators based on mutual respect and trust (Rasinsky and Fredericks, 1989).

3. The educational system must translate the tasks to educational policy to produce obligatory procedures that will cancel out the haziness and doubts and limit the gaps (Noy, 1992).
4. Transfer of authority to the local institutions and returning educational roles to the community in order to reinforce the connection between the parents and the educational institute (Goldberger, 1991; Noy, 1992).
5. Creating a parental community that is involved in the educational goals and processes (Sa'ar, 1995).
6. Bringing parents closer to the curricula applied in schools in order to promote educational achievements of students (Goldberger, 1991).
7. Parental involvement as a group can provide students with additional educational services (Goldring, 1988; Noy, 1990; Rasisi, 1993).

Parental involvement is the basis for expanding understanding and mutual trust between teachers and parents, and for limiting the gaps between them ((Sa'ar, 1995).

It leads to a positive revolution expressed in cooperation leading to improving the image of the student, creating trust in teachers, creating a positive identity for the school and preparing a basis for supportive and encouraging interaction (Noy, 1986).

Deepening the connection and involvement will contribute to an educational climate from which all the participants in educational activity will benefit (Sa'ar, 1995; Epstein, 1994; Noy, 1992).

So far the literature review has dealt with the concept 'curriculum', its definition, theories and outlooks, explaining the meaning of managing, developing and operating it. In this process, the stakeholders - educational authorities, teachers, parents and the students - are involved through their perceptions, opinions and beliefs. This section will deal with the students - 'the main target' - their place in the class through the learning activities, their relations with the teacher and their achievements.

(This section is very brief as the study will focus on the gifted student in a separate section that follows).



#### **2.4.4 Students**

“The curriculum, which unfolds in the classroom as a result of the engagement of the teacher and student with the content to be learned.” (Klein, 1991, p. 29)

The above is the interactive meeting created on an operational level (Jackson, 1966). The teacher may wish to implement a certain curriculum in the classroom but the dynamics, circumstances and the interaction of the teacher and the student may create a different curriculum (the perceived curriculum).

The students can decide to what degree they will participate in a programme willingly and out of self interest, and to what degree they will refuse to cooperate and try to affect the teachers to change them (Klein, 1991). The personal experiences of students can lead to different study products (Silberstein, 1984). In the experiential level, we find the student's expectations, perceptions and achievements.

The next section will describe the gifted students according to their intellectual, emotional and social needs and then examine enrichment curricula, which may suit their needs.

The second section of the professional literature deals with gifted students. According to Freeman (1983), “the world needs clever children – those whose potential capabilities could contribute greatly to the life in many fields, if they are given the chance to develop” (p.15).

### **2.5 Gifted Children**

When researchers and educators discuss giftedness the concept is examined via two aspects, the essence of the phenomenon and its methods of expression.

- 1) The “essential aspect” examines the level of achievement that differentiates between the gifted students and the regular student and raises questions such as: Is the difference between them essential? From what level can one define a child as having special potential? What are the traits and abilities necessary to obtain unusual achievements?

- 2) “Methods of expression” relates to questions such as, how is giftedness expressed? What are the fields and the achievements of individuals guiding their character as being gifted? (Nevo, 1997, p. 443).

### **2.5.1 Defining and identifying giftedness**

The first issue in the topic of giftedness is the question of defining the population of the gifted students. There are perhaps 100 definitions of giftedness (Hany, 1993). Arguments about precise definitions and identification have been known for about a century.

The terminology relating to the concept of giftedness still lacks clarity and there is a lack of agreement among researchers who have described this population. There are those that define this population as the upper end of the normal distribution of intelligence, the highest two to three percent of children whose form of cognitive development is different from that of other children of their age. In principle, each researcher can choose an idiosyncratic cut-off point for defining giftedness (Nevo, 1994). It refers to children, who gain intelligence quotients of 130 or more (Congdon, 1978), usually measured by IQ tests, which are the most popular criterion for defining children as gifted (Freeman, 1991). Despite attempts to detract from the value of the IQ as an indication of human potential, many studies have found a close connection between giftedness and high IQ (Ziv, 1998).

In current thinking, giftedness is regarded as including more than intellectual ability and we “move away from an IQ based definition of giftedness towards a much broader view” (Witty, 1951 quoted in Denton and Postlethwaite, 1985 p. 22). The multi-dimensional approach includes expressions of general ability such as abstract thought, expressions of perseverance such as determination, and expressions of creativity, which include flexibility and originality. The psychosocial approach added specific ability, personality factors, environment and randomness (Rosmarin, 1989).

As psychological understanding of gifted children increases, the concept of intelligence has risen again in debates and research worldwide. The traditional narrower definitions are giving way to more flexible constructs which incorporate social components and emotional development, economic and environmental factors, ethnic and cultural

dimensions, gender issues, race and background.

### **2.5.2 Intelligence**

The term “intelligence”, which comes from the Latin root of “*intelligentia*”, means intellectual perception, to deal with new or trying situations, education and insight. There are those who think that the Roman politician Cicero coined the term. It first appeared in Spencer’s book (1895) which defined it as ability, adjustment and learning. There are three popular definitions of intelligence: ability to cope with personal worlds, to solve problems, and a way to organize, acquire and use knowledge (Nevo, 1997). The concept has been at the centre of controversial debate for many years. Many researchers have attempted to define the concept but there is, as yet, no consensus or uniformity in the definition.

The important question that every intelligence theory attempts to answer is, to what degree is intelligence one general trait (Terman *et al*, 1925; Spearman, 1927; Eysenck and Kamin, 1981; Jensen, 1989; Herrnstein and Murray, 1994), or an assemblage of separate traits (Thurstone and Thurstone, 1941; Piaget, 1949; Guilford, 1954; Robinson and Robinson, 1965; Gardner, 1992), with an unstable connections between them. The theories related to multiple variables depend on the elements of culture, time and place (Bloom, 1964; Eysenck and Kamin, 1981; Tennenbaum, 1986; Renzulli, 1978; Gagne, 1985; Gardner, 1992).

The many theories which deal with the essence of intelligence may be divided into two as follows:

Quantitative theories, which aim to characterize the structure of intelligence, are based on empirical and statistical findings (IQ). These theories assume that there are personal differences in human abilities and they can be measured. Analysing these individual differences shows the nature of intelligence. Among them is Spearman’s model (1927), which is based on a general intelligence factor (G), and Guilford’s cube model (1956), which attempted to characterize an organising framework including three dimensions of intelligence – product, content and operation.

These theories have limited the concept to components which may be quantified and

measured, and have aided in the fields of classification and diagnosis.

Qualitative theories expand the definition of the concept into “the group of intellectual functions that the individual must perform in different life situations”, (Nevo, 1997, p 724). The idea of developing skills for coping with real life problems in authentic daily circumstances is expressed in Sternberg’s theory (1985), and Gardner’s multiple intelligences (1992).

These theories also relate to the differences which exist between individuals in their personalities, such as determination, ambition, willpower, commitment to a goal and self-control. The motivational component, which appears in Renzulli’s approach (1977), argues that when comparing between two individuals with high and identical intellectual abilities, it can be clearly seen that the individual with the higher achievements will be the one who shows motivation and determination. According to Sattler (1988, quoted in Nevo, 1997) there have been studies which prove that personality variables, such as motivation, have affected the IQ.

Additional attention has been paid to the influence of the physical and social environment in which the individual grows, including the family, school, society and era. These connections are included in Tannenbaum’s psycho-social model (1983), which argues that the interaction between these factors is what determines fulfilment of potential and achievements. Gagne (1995) also relates to personality, motivation and the environment as factors which aid in developing a child's potential.

In summary: The qualitative and multi-dimensional theories have proven that intelligence “is essentially connected to the individual’s cultural dialogue with all factors within his environment which aid him to adjust to it” (Shimoni and Levin, 1998, p 13).

The main operative instrument, through which individuals’ levels of intelligence are measured and assessed in a structured and uniform manner, is the intelligence test. The basis of the test was Binet's (1903, 1907) perception of intelligence as a measure of spiritual awareness, understanding of intellectual activities and speed of performance, “to more advanced levels of mastery and to a greater depth of understanding” (Porter, 1999, p. 41). The main goal in developing the IQ test was the

search for individual differences.

Use of intelligence tests can be divided into practical, such as selection for a gifted children's project, and research, where intelligence and its correlates serve a research topic. Binet's tests represent four cognitive spheres: 1) Verbal thought; 2) Quantitative thought; 3) Abstract thought; 4) Memory.

They can be classified into two types:

A) Individual intelligence tests which are transmitted through the use of oral and written questions, and with the aid of various materials and accessories.

The most well known tests are:

a. The Wechsler Test - which today measures three different age groups, age 3-7, age 6-16, and age 16-74.

b. The Stanford Test - which consists of 15 tests aimed at different age groups.

B) Group intellectual ability tests which are transmitted simultaneously to a large number of testees at a uniform rate and with ascending level of difficulty, while allowing a regular and uniform amount of time to every testee.

For example: a. The SAT (Scholastic Achievement Test) - this is used in the USA every year with students who would like to study in colleges and universities.

b. Psychometric entrance examinations - which Israeli universities use as a selection instrument.

In summary: tests are the operative measurement tool for assessing levels of intelligence. There are many tests which serve different aims, but there is no single test which is the sole measure and, in most cases, intelligence tests are not the sole tool used for measurement. Tests have had a considerable influence over life within society, but debates and social-ethical research have raised questions regarding their reliability, validity, and social-cultural fairness.

Since the 1930s we have witnessed the debate about whether intelligence is almost entirely produced by genes or whether the environment also plays a role. This controversial debate is focused on questions such as:

1. To what extent are the differences in ability due to genetic or environmental factors?
2. Can we measure it?
3. Is it a fixed form?
4. Can it be increased or nurtured?
5. Can it predict potential for doing well academically?
6. Can it offer any practical basis for educational strategy?

These discussions could "widen the understanding of mankind's complexity" (Eysenck and Kamin, 1981, p. 1) with regard to the meaning of "intelligence".

By the 1960s/70s there was a tendency to be against the heredity viewpoint that claims that cognitive ability is about 70%-80% and the environment only 20%-30%, while the behaviourist view argued that human potential was shaped about 50%-60% by environmental forces (Eysenck and Kamin, 1981).

Today the varieties of theories do not contradict one another, they do not argue about proportions. They actually attempt to achieve better understanding of the essence of the concept of intelligence, while searching for a comprehensive definition which will act as a common denominator between the existing models and theories, and will be agreed upon by those dealing in research of the subject.

Learning and examining the theories about intelligence, I found that every approach chooses evidence and research findings, which can support their perceptions and their ideas. For example, Eysenck (1981) bases himself on Spearman's 'G' Factor theory, while Herrnstein and Murray base themselves on the studies done by Cyril Burt in their attempt to prove the correlation between intelligence and heredity.

In their book, "Intelligence: The Battle for the Mind", Eysenck and Kamin deal with "academic facts and touch also on social concerns as racial and cultural factors"(Eysenck and Kamin 1981, p.89).

Eysenck relates to intelligence as a concept which can be understood by facts and theories. He claims that IQ is a highly heritable trait and intelligence is largely an innate quality. Burt's work (1959 quoted in Gould 1997), made up of his scientific

enquiries through empirical data and statistical studies, were the central evidence to support Eysencks' view. Despite the criticism made of Burt's work, which argued that it did not describe the method used for gathering data and achieving results, Jensen declared that it was the most satisfactory attempt to calculate the heritability of IQ.

Through the argument Eysenck determined a number of facts:

- 1) There have been close relationships between IQ and success in school, "correlations are highest for the most academic subjects" (Eysenck and Kamin, 1981 p. 29).
- 2) IQ tests do measure intelligence and justify using the term "G" and "intelligence" interchangeably.
- 3) It should not be assumed that intelligence is fixed or absolute and that "nothing can be done about its level or its distribution" (Eysenck and Kamin, 1981 p. 60).
- 4) Each person is an individual not just a member of a race, group or sex.
- 5) Social problems have always existed; I.Q tests only reduce them to a "quantitative level".
- 6) Burt's theories are more precise and more scientific.
- 7) No one denies the importance of environmental factors. They create, with heredity, the individual differences; the argument is about the weight of each one. Eysenck thinks that the proportion is 80% heredity and 20% environment.

He summarizes his argument "without prejudice and without preconceived ideological ideas"(Eysenck and Kamin, 1981 p. 169).

In my opinion Eysenck, as every other researcher, seeks to persuade public opinion that his ideology is correct. He argues that his attitudes are far from prejudiced. There is reinforcement in the fact that his ideas are based on much experience and findings of studies performed in the past. However, when he refuses to accept criticism and clings strongly to his opinions, this prevents him from accepting new opinions which may undermine his outlook. For example, he supported the quantitative theory, presented in his discussion, and argued that Kamin failed to "formulate a stable consistent theoretical model of environmentalist influences and this is his weakest claim from the scientific point of view" (Eysenck and Kamin, 1981 p. 161).

Kamin, who takes the opposing view, that intelligence is shaped by environmental



factors, rejects Eysenck's arguments and claims that IQ tests and school attainment do not indicate any significant correlation. They are limited in their scope and dependent on past experience. IQ is not "closely linked to biological and physical measurements" (Eysenck and Kamin, 1981 p. 150), and there is no evidence to support the claim that genetic factors produce differences in cognitive ability between people.

Kamin rejects the claim that hereditary factors "are more objective and innocent of ideological motives" (Eysenck and Kamin, 1981, p.155). In his opinion the data consistent with genetic factors can be interpreted along with environmental factors. The social and the ethical issues are important and we must relate to them very carefully, especially when we deal with sensitive areas such as differences between races, male and female, fairness to sexes, school attainment and equal environment.

In their debate we can see that Eysenck tried to convince us, in detail, of the truth of his outlook, while presenting research based proofs. But where is Kamin's theory? His opinions can be learned about from the responses to Eysenck's outlook. He emphasized errors, fault and mistakes, but did not present any general conclusions.

The same difference of opinion about the essence of intelligence is found in a debate held between Herrnstein and Murray (1994), and Gould (1997), regarding the connection between heredity, intelligence level and environmental-cultural factors. Herrnstein and Murray in their book *"The Bell Curve"* emphasize the importance of the quantitative approach that assumed that intelligence describes something real, which is "universal and ancient as any understanding about the state of being human" (p.1). The theory is based on empirical findings and statistical processing of intelligence test grades. On this basis they attempted to explain the structure and function of intelligence. They supported the classic traditional group that describes "intelligence" as a structure and the "G" factor at the centre of it. They referred to extremely rich empirical data from many researchers, including Spearman, Jensen and Guilford, and emphasized "the remarkable utility of the construct called G" (Herrnstein and Murray 1994 p. 560), the general factor extracted from a set of mental tests as an expression of a human ability.

In their opinion Gould is wrong in thinking that by using an alternative method he could get rid of this factor. As noted by Jensen, cognitive ability, which refers to intelligence and to qualities of mental quickness and complexity, is substantially heritable. The scores of IQ are "stable, although not perfectly, over much of a person's life" (p. 23) therefore raising intelligence is not easy.

The behaviourists ignored genetic differences between individuals and claimed that human potential is shaped only by environmental factors. The arguments against their view are:

- \*IQ tests are not demonstrably biased against social, economic, ethnic or racial groups; they can only predict a variety of social outcomes, "ethnic differences in cognitive ability are neither surprising nor in doubt" (Herrnstein and Murray, 1994 p. 269).

- \*The differences among individuals are greater than those between groups.

The answer to the question 'Can we improve the cognitive functioning of human beings?' is that it can be done but in small and temporary amounts. This connects us to the erroneous assumption that people can raise their IQ if they get the right help, or that educational opportunities will reduce differences in cognitive ability. Although they cause some changes in IQ the size of the effect is tiny. This conclusion is supported by evidence from educational experiments. In spite of this claim the book does not imply that we should give up "cognitive nurturing" of human society but we have to look for improving human potential. This is a kind of compromise in the debate between Herrnstein and Murray (1994) and Gould (1997) but the priority is given to the traditional view of intelligence, "social class remains the vehicle of social life but intelligence now pulls the train"(Herrnstein and Murray, 1994 p. 25).

Gould, in his book *The Mismeasure of Man*, claims that the book *The Bell Curve* presents an old, familiar argument without compelling data to support it. It is a "long-brief" version of Spearman's 'G' theory based on genetics – nothing new. This basic claim is the only justification that hereditarianism of IQ has had. However, we have to emphasize the fact that Spearman himself did not seem to take much interest in the subject of hereditary differences among people. Gould connected the one-dimensional argument about the 'G' factor with the discussion of the Factor Analysis which was

invented by Spearman as a key rationale behind 'G', as Burt (1959, p.303 quoted in Gould 1997) called it the "core of intelligence definition". The basis of this statistical method was to study positive correlations among tests. However, a strange and surprising fact arises in reading the book, that the factor analysis argument is barely mentioned in Herrnstein and Murray's book.

According to Gould, this one factor, stable and innate, is measured by mental tests. As for mental tests, they are misused for ranking, labelling and stigmatising; they do not predict anything except success in school, all other areas in life are unrelated to test scores. Binet (1898 quoted in Gould 1997), who created the IQ tests, rejected the idea of the "innate version". His claim was that measuring general intelligence could not be done by a single number and his intentions in developing IQ tests were to identify students in need of help.

In my opinion, the argument about heredity versus environment cannot be treated in terms of distribution into percentages. The distinction between heredity, 60%, and environment, 40%, means nothing because the behavioural expression cannot be parsed into "quantitative percentages" (Gould, 1997, p.34). Gould, who writes about differences between populations or groups, claims that percentages of variation cannot explain them: "they assumed that differences between groups were products of heredity despite manifest and profound variation in quality of life"(Gould, 1997, p. 187). Even Spearman agreed that the development of general ability is given by heredity but specific abilities are dependent upon environmental influences.

Gould rejects the issue of "innate and stable properties". It brought him to ask, why struggle to raise the I.Q score? Why invest in education? In his opinion the claim about high percentages of heredity does not oppose the idea that enriched education can increase intelligence, because the scores are not constant and they change over time. This opinion was shared by Binet (1898, quoted in Gould 1997) who believed in effective educational support "for the human mind is flexible" (p.389). Burt denied that the tests limit the opportunities for achievement. In his opinion they could identify "those few individuals in lower classes with high innate intelligence" (p.314). But Gould objects to Burt's idea that low intelligence is the major cause of poor performance in school. Gould argued that Herrnstein and Murray (1994) omitted

facts, their premises were mistaken, they misused the science, and "their genetic determinism represents a false theory of biology"(p. 390). Through all of his arguments, Gould stresses the point that if IQ is a genetic factor then people with low scores fails to succeed through life.

In summary, if we look at the two debates presented in the chapter we can see that one theory relates to another theory in a partial manner and the theories do not contradict one another totally. The criticisms that researchers suffer upon presentation of their findings and opinions aid them in examining their arguments, but during the same process, they discover that there are many points which are agreed upon by both sides. For example, Eysenck argues that he and Kamin agree that differences between individuals are related to both heredity and environment, but the difference between them is the weight given to each one of the factors. According to Eysenck (Eysenck and Kamin, 1981) "all those who take part in the argument want to discover 'truth' rather than win an argument" (p. 157).

The arguments allow a comprehensive view and understanding of different aspects regarding the essence and complexity of intelligence; a fact which proves that there is still no consensus regarding an accepted definition of the concept of intelligence.

In summary: In the field of intelligence we find two central approaches, one which has focused on the cognitive components of high ability, the theories related to the quantitative group; and the other has focused on the broader conception of social considerations, which relates to multiple variables, and depends on elements of culture, time and place.

In current thinking we can conclude that there are "interactive relationships between social, emotional and cognitive development" and "means by which potential may be translated into performance" (Stopper, 2000, p. 3) that can help us to understand the scope of definitions and models of giftedness.

The range of opinions that created the mapping of giftedness divides the definition into two dimensions: the structural dimension, which classifies the character of the theoretical models as quantitative or qualitative, and the content dimension, which classifies the perspectives of the world of content of the work being studied as

follows: 1. Historical; 2. Personal; 3. Developmental; 4. Psychometric; 5. Cognitive. (Study ordered by the Na'aman Institute in the National Centre for Tests and Evaluation, 1994).

### **2.5.3 Theoretical models of the structure of giftedness research**

#### *The quantitative approach*

In the literature we can discern between two approaches: the quantitative and the qualitative. Those who accept the quantitative approach related to giftedness as “representing one of the poles of the quantitative continuum” (Nevo, 1997, p. 444). Sternberg and Davidson (1986) claimed, “we construct the category of giftedness statistically by choosing where to place the demarcation between giftedness and average abilities” (p.3). Among the representatives of the quantitative approaches to giftedness study, we can discern between those who emphasize one general intellectual factor, how much or how quickly they can learn, and those who emphasize many specific factors. Terman *et al* (1925), Spearman (1927) and Jensen (1989) saw giftedness (and intelligence in general) as the function of a single factor, the general intellectual ability factor (G) – a statistical entity which expresses the “core of human mental ability ” (Herrnstein and Murray, 1994 p. 14) meaning the ability to think, including verbal, numerical, spatial, abstraction, memory, analysis and conclusion drawing elements measured by IQ tests.

According to all of the quantitative approaches, general ability is a basic element in defining giftedness, but the approaches differ in the weight that they attribute to the factor. Porter (1999) defines the criterion measured by IQ tests as “conservative versus liberal” where the concept ‘conservative’ relates to the upper five percent (Renzulli, 1986) and the concept ‘liberal’ includes fifteen to twenty percent of the population in the gifted category (Reis and Renzulli, 1982). Renzulli’s three ring model (1977), which describes five percent of the gifted population according to cognitive ability, perseverance and creativity, has become a general model for placing students in enrichment programmes within schools. According to this model, in the initial stage, students whose academic achievements are the highest are identified (15-20%), and they are considered the ‘talent pool’ of the school.

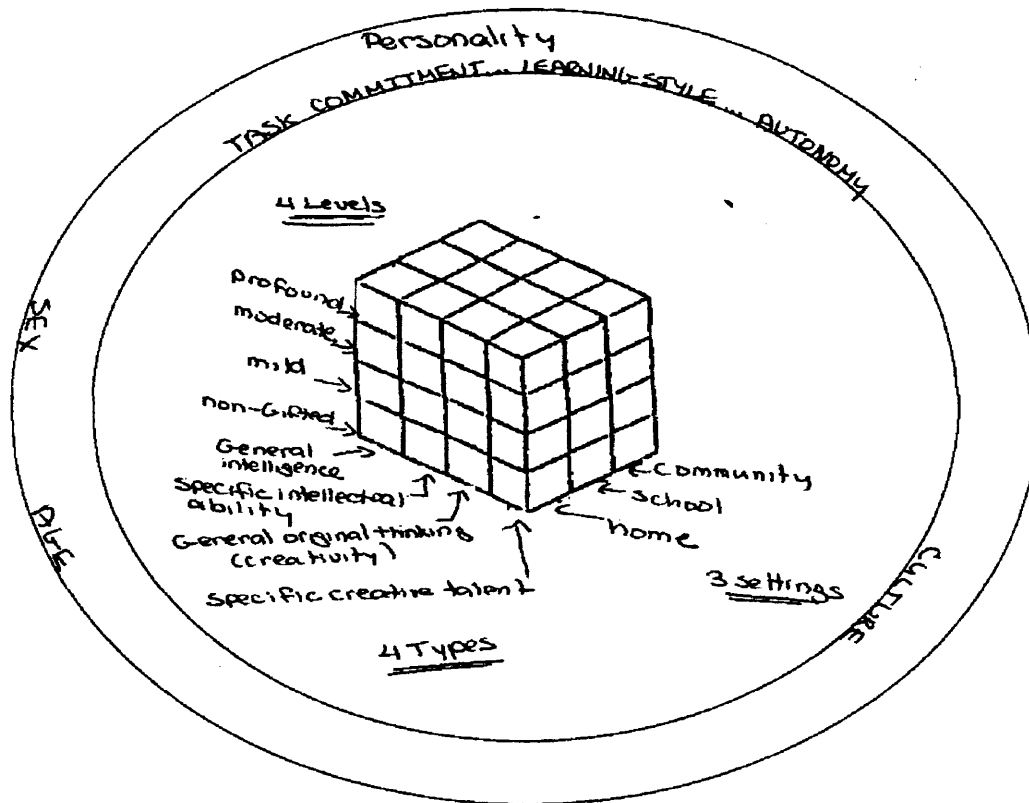
Focusing on general ability alone means ignoring mistakes in evaluation stemming from cultural variety, unusual achievements, factors related to growth and motivation, the types of gifted people and the gap between potential and actual achievements (Carmel, 1994). As a result of the criticism of the IQ criterion as the single measure of giftedness, Guilford (1967) recommended emphasizing the idea of a number of measurable factors of specific intellectual abilities. He described the structure of intelligence in a cube model with three dimensions, operations, content and products, presenting many and varied cognitive abilities.

"The objective of the model was to organize intellectual behaviours and intelligence tests" (Nevo, 1997, p.60) within one framework, with the determination that each one of the capabilities does not function on its own but rather in combination with other capabilities. Guilford's view served to broaden the definition of giftedness to include divergent or creative thinking as well as convergent thinking or intelligence (Nevo, 1997).

Based on the same principle, Milgram and Milgram (1976) developed a 4x4 model with four categories of skills. The first category refers to the ability to think abstractly and to solve problems logically; this ability is measured by IQ tests. The second category refers to a distinct intellectual ability in a given area; these abilities are expressed in performance. The third category is the process of generating original ideas using imagination. The fourth category refers to specific creative ability, "it is original thinking applied to real world performance areas" (Milgram 1992, p. 237).

According to Milgram (1976), gifted students' behaviour can be divided into four levels of giftedness: non-giftedness – IQ below 130; 130 wide; 145 moderate, 150-160 profound. Milgram, (1989) added three frameworks to the measurable factors: home, school and community. In her opinion the attitudes of the family have great influence on the development of giftedness, school experiences can provide important contribution to realization in adults, but they have to relate to the unique needs of each gifted child and the opportunities of special education available to the gifted child through policy decisions. The circle around the model includes individual differences such as age, sex, socio-economic status, culture and personality characteristics. All are relating to the heterogeneity of the group of the gifted, expressed in the personality of the gifted child, the family unit that they grow up in,

the educational frameworks that they participate in, and the environment that they function in, as represented in Figure 2.7.



**Figure 2.7 Milgrams' Model (1989)**

This model adds to the conceptual clarification of the diverse abilities that characterize the gifted individual. According to Milgram the realization of potential abilities is dependent on the interaction among the variables within the circle and those inside the model.

Additional theories, related to a number of elements, included indices that dealt with the biological "hardware" of the gifted child, and the cognitive "software", such as speed of response, thought processes, effectiveness of perception and understanding, a process of insight that leads to clarification of relevant information, learning lessons and conclusions (Eysenck, 1979, 1982; Denton and Postlethwaite, 1985; Jackson and Butterfield, 1986; Davidson, 1986)



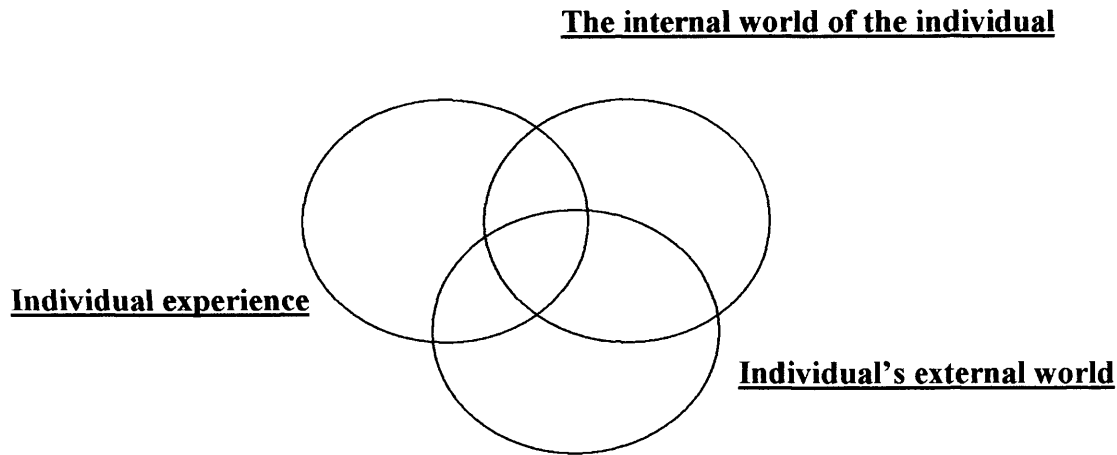
In summary, the quantitative approach isolates elements in order to explain the quantitative difference via tasks measured in tests, but it creates a problem of combining factors more typical to the qualitative approach. It can be determined that “it is unlikely that a single definition of giftedness will receive unanimous endorsement” (Porter, 1999, p. 13).

### *Qualitative approaches*

The supporters of the qualitative approach relate to giftedness holistically, and emphasize the connection between cognitive elements and emotional, social and environmental elements. All of these elements determine the level of function of the individual. Giftedness has a number of methods of expression, among which are the “unusual ability to cope with problems that require memory and analytical ability, to perform a synthesis of existing information into something new” (Carmel, 1994, p. 10). Following this view about the process of exercising intelligence by the information we get, Sternberg (1985) coined the term “Triarchal Theory” of intelligence, describing three different worlds. The innovation is in the recommendation to find the common contexts between them in order to achieve a whole picture of the functions of intelligence. It emphasized cognitive ability in defining giftedness with three elements to giftedness.

Figure 2.8 describes three worlds that the arcs represent:

- a) The first part - analytic giftedness-describes the internal structure of intelligence functioning.
- b) The external world – practical giftedness - concerned with the real world in which people function.
- c) The world of experience – synthetic giftedness - deals with performance of tasks on the environmental level.



**Figure 2.8 The Triarchic Theory of Intelligence (Sternberg, 1986a)**

Adjustment to the environment transfers the academic issue into the field of coping in real life, a topic that can be found in Gardner's theory (1992) regarding human coping with authentic situations in their real lives. Another example we can find in Gould's (1997) claim, that IQ tests are connected to success in school, but all other areas in life are unrelated to test scores.

According to Sternberg (1991), "giftedness is as much a well managed balance of these three abilities as it is a high score of any one or more of them" (p. 46). He thinks that the gifted individual must show abilities in all three of the areas in order to express and to fulfil the potential of his giftedness. Sternberg's theory is comprehensive and complex, but there is no possibility of testing it because he raises no specific hypothesis, and the connections between the three theories are weak.

Marland (1972) defined gifted individuals with a multi-skill definition to include six different areas, among which are ties of connection and parallelism, but each of them is essentially different:

- 1) Intellectual ability (general academic ability in all areas of study).
- 2) Specific intellectual ability (special academic ability in one area)
- 3) Creative thought (intellectual creative ability).
- 4) Visual ability and artistic skill (creative performance skills).
- 5) Social leadership ability (leadership ability).

6) Psycho-motor ability (athletic ability).

His definition is compulsory for the educational authorities in the USA (Report to the Congress of the United States by the Commissioner of Education) and includes a number of clear advantages:

1. It defines giftedness as reflecting a broad range of skills.
2. It relates to skills that can be defined operatively and validly measured.
3. It was widely accepted and used to justify providing special education services.
4. It provides a basis for processes of location of gifted individual and consolidation of educational curricula that satisfy the needs of a broad and varied population. (The 1978 yearbook of the National Society for the Study of Education, Chicago, 1979).

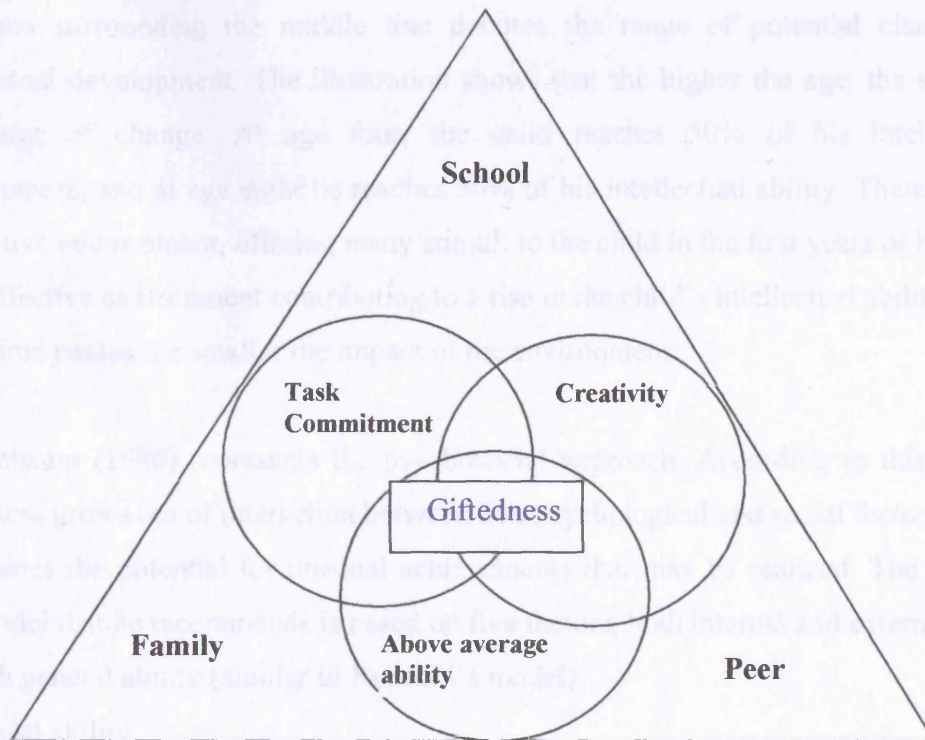
Marland's broad definition of giftedness was widely accepted and used to justify providing special education services to different kinds of gifted and talented students, but its limitations include three shortcomings: 1. it ignores high motivation, 2. the six categories are not parallel and independent, 3. educators misused the definition and continue to use high IQ for the identification process (Renzulli, 1978).

*The multi-dimensional approach*

This approach attempted to expand the quantitative approach via additional elements and to relate to the progressive qualitative approach with the addition of other dimensions in defining giftedness. In the 1980s, multi-dimensional models that were not based specifically on the term intelligence were developed.

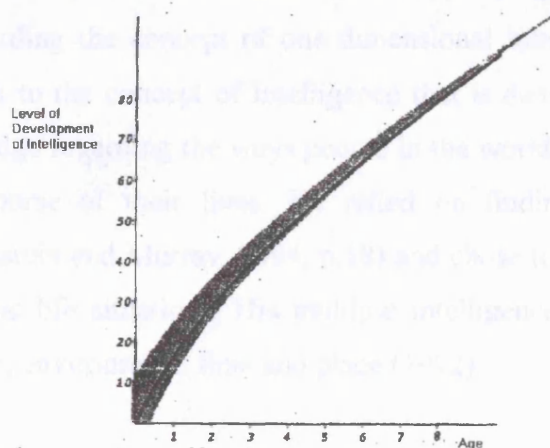
The Renzulli three ring model responds to the limitations of Marland's definition and determines that gifted persons "who truly make valuable contribution to society possess three critical traits: high creativity, high task commitment (motivation and perseverance) and above average intellectual ability" (Davis and Rimm, 1985, p. 11). The model determined that giftedness is a result of the interaction between the three qualities (Renzulli, 1978; Tannenbaum, 1986) and it is widely accepted in the educational systems through enrichment programming models.

Monks *et al* (1992) added three factors to Renzulli's Model: school, peer and family, as shown in Figure 2.9.



**Figure 2.9 A Multifunctional Model of Giftedness (Monks, 1992)**

Bloom (1964) relates to the assemblage of environmental variables connected to the individual's different periods of life. In his opinion, the impact of environmental variables over intellectual potential is strong and important, especially in the first years of life. The illustration below (Figure 2.10), which is called the developmental curve, describes the rate of development of intelligence in childhood years.



**Figure 2.10 The Developmental Curve (Bloom, 1964)**

The area surrounding the middle line denotes the range of potential change in intellectual development. The illustration shows that the higher the age, the smaller the range of change. At age four, the child reaches 50% of his intellectual development, and at age eight he reaches 80% of his intellectual ability. Therefore, a supportive environment, offering many stimuli to the child in the first years of his life, is an effective environment contributing to a rise in the child's intellectual ability. The more time passes the smaller the impact of the environment.

Tannenbaum (1986) represents the psychosocial approach. According to this approach giftedness grows out of interaction between five psychological and social factors, and this determines the potential for unequal achievements that may be realized. The five point star model that he recommends is based on five factors, both internal and external:

- 1) High general ability (similar to Renzulli's model).
- 2) Special ability.
- 3) Personal traits that are necessary for the appearance of giftedness, i.e. commitment, perseverance, positive self-image and determination.
- 4) Environmental factors: school, home and peers.
- 5) Different occasions and personal circumstances.

Every field in which giftedness appears has its own unique interaction of the five factors (Nevo, 1997).

Gardner (1983, 1992) expanded the assemblage of variables into multiple proficiencies and skills in which one can find variety among individuals. He took a critical stand regarding the concept of one dimensional intelligence and offered an alternative outlook to the concept of intelligence that is deduced from more natural sources of knowledge regarding the ways people in the world develop skills that help them over the course of their lives. He relied on findings from a "narrative" perspective (Herrnstein and Murray, 1994, p.18) and chose to look at the way people cope with authentic life situations. His multiple intelligences are supported by the cultural framework, environment, time and place (1992).

Gardner identified seven intelligences: verbal, musical, mathematical, spatial, movement, interpersonal and inner-personal. He argued that it is possible to improve any intelligence to the limits imposed by heredity, and that they should be examined

in the cultural context in which they are expressed. Some of them are inborn but change through the course of life in the meeting between the potential of the gifted child and one of the intelligences (Nevo, 1997).

In recent years Gardner added two further intelligences: moral and survival intelligence.

The main criticism of Gardner's theory on multiple intelligences claimed that his findings did not relate to experiments and could not be measured. In spite of the objection, there is no doubt that the model led to a change in perceptions about the essence of the concept. Gardner reached the conclusion that intelligence is the ability to solve problems or to create "products" within the framework of the community or a certain cultural system. The ability to solve problems allows the individual, when he/she is interested in attaining a goal, to find the most appropriate method of attaining the goal. Gardner's use of the term "product" was the ways of absorbing and transmitting information or expressing attitudes and emotions.

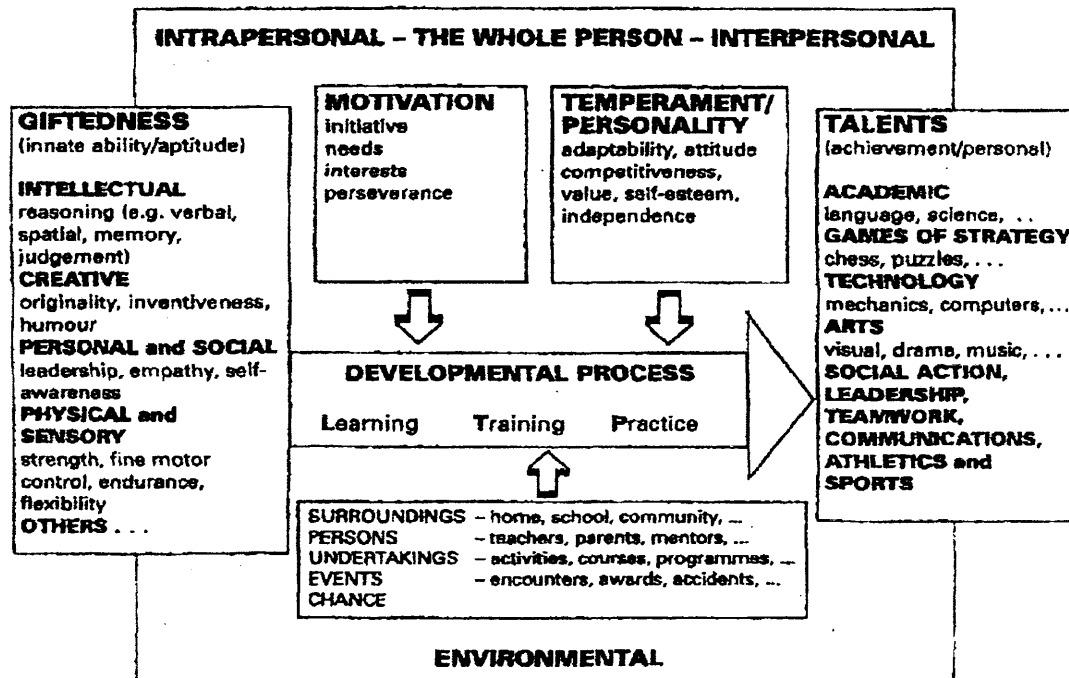
According to Gardner, the teacher must be aware that children are different from each other in the composition of their intelligences. This awareness will direct the teacher to construct lessons based on varied material and teaching methods and will locate the strong points of different students.

Gagne, (1991, 1995) who defined "giftedness" as "untrained abilities", differentiated between the concepts "gifted" and "talented" where "gifted" means developmental potential and "talented" relates to its expression and performance. According to his theory the gifted individual's ability can be hidden and therefore the skill will not be expressed or realized, while a skill that is uncovered is proof of the existence of the ability.

His multi-dimensional model (as shown in Figure 2.11) describes, on the left side, areas of giftedness that include innate ability, and on the right side, areas of the talents that deal with achievements. Between them we can find personality factors, the environment, and assisting factors, both external and internal, which he calls catalysts. The duty of these catalysts is to develop a child's potential through performance. The model explains two important aspects: 1. the child can be gifted but not talented, "if



something has happened in the catalyst, the child will not be talented" (Rogers, 2002, p. 34) because he didn't get help to develop his potential; 2. the child cannot be talented without being gifted, meaning, "if the child is performing at very high levels there had to be potential to start with" (Rogers, 2002, p. 35).



**Figure 2.11 Gagne's Model**

The multidimensional model of Gagne includes many components related to other models but, in contradiction to Renzulli, motivation is not part of the definition of giftedness but serves as an assisting factor within the model for fulfilment of potential. Marland's model can be divided, according to Gagne, into two parts: intellectual ability and creative thought which belong to the definition of giftedness, while academic ability, leadership and abilities in the artistic fields and psycho-motor field, are included within the concept of talents. In contrast to Tannenbaum's model, the five factors are presented differently in Gagne's model:

- 1) General ability - is part of the definition of giftedness.
  - 2) Specific academic ability - belongs to the field of the talented individual's achievements.
  - 3) Personality factors -
  - 4) Environment factors -
  - 5) Randomness factors -
- } the assisting factors, "the catalysts", which moderate and aid in developing potential

Comparing Gagne's model to Gardner's theory (1983) of multiple intelligences we can find some similarities between the two models. Verbal, logical and spatial intelligence can be found in Gagne's model as part of the definition of giftedness – intellectual potential. Musical and movement intelligence are part of the expression of ability, and in combination with interpersonal and inner-personal intelligence, one finds the “whole” individual.

Other models are:

- \* The developmental potential model based on a pool of inborn skills (Piechowsky, 1979) and biological potential (Gardner, 1983).
- \* Models based on personality, intellectual, emotional and social elements with added environmental aspects (Clark, 1983; Haensley *et al*, 1986).

In summary, all of the theories that define the concept of giftedness show how multifaceted it is and how few factors are measurable, relative to the number of traits that create the potential for excellence (David, 1997). According to Gagne (1995), the concept of giftedness is difficult to defend because it is “defined too loosely while being measured too restrictively” (p. 104). Porter (1999) claims that part of the reason for the variation in definitions “is that their advocates are searching for one true definition, when manifestations of giftedness will differ across time and cultures” (p. 13).

The second range of opinions relates to the content dimension, which classifies the character of the theoretical models.

#### **2.5.4 The content perspective of giftedness**

##### *Historical perspective*

“Defining giftedness is not separate from its social context” (Carmel, 1994, p. 5). In primitive societies this title was given to excellent hunters and fishers who enjoyed the status of gods. In the Middle Ages, the philosophers with intellectual ability threatened the church, which was negating intellectual giftedness. They were persecuted and accused of magic. During the Renaissance, the status of the gifted persons improved, but they were still suspected of a lack of sanity. Over many years, the gifted persons were described as unhappy, impractical people, bookworms, lazy,

imbalanced and physically inferior. This outlook led to fear of genius, jealousy and rejection of gifted children (Freehill, 1961).

The work done by Terman and Oden (1959) and Hollingworth (1942) contradicted the negative stereotypes assigned to gifted people. They saw educational giftedness not as being accompanied by disabilities and other strange attributes, but rather the opposite; gifted people were seen to be more popular and physically healthy. "The concept of giftedness also changed. The focus of modern literature moved to the potential for excellence, more than excellence itself" (Grinder, 1985).

#### *Personality perspective*

The early research of Terman and Oden (1959) and Hollingworth (1942) showed an advantage for gifted students compared to those of normal abilities in fields such as maturity, emotional stability, internal control, self-image, positive self-awareness, social skills, and general adjustment. High motivation, wide interests, comprehensive knowledge and persistence characterized them; they were presented almost as perfect students. They were described as the leaders of the future, "somehow morally superior with enthusiasm, easy communication, and problem solving skills" (Freeman, 1991, p. 62). Despite being critical, tending to rebel, and free to express themselves, they were less impulsive, less egocentric and less emotional. Ziv (1984) on the other hand, claimed in his study that the gifted students tended to be introverted and more sensitive while the regular population tended to be more extroverted and stable. According to study ordered by the Na'aman Institute in the National Centre for Tests and Evaluation, (1994) this suppression "of affective behaviour did not create social withdrawal and no emotional or adjustment disorders were found. Gifted students were found to have a stronger social orientation than average" (p.6).

#### *Developmental perspective*

"The overriding trait of very bright students is that they are developmentally advanced in language and thought" (Davis and Rimm, 1985, p.21). Their early development causes an improvement in logical thinking abilities and understanding of complex concepts that are normally learned at an older age. Compared to normative groups, the gifted students have a large vocabulary and show a strong tendency for abstract concepts, and creative and flexible thought. The emphasis is on the growth of the

gifted students with age where, according to Binet, their mental age is higher than their chronological age and their physical development. Among the representatives of this approach is Feldman (1980, 1982, 1986) who attempted to expand the cognitive developmental theory of Piaget. He claimed that in many cases children who show unusual ability progressed from stage to stage rapidly; “it is not the level of achievement ...that is so remarkable, but the speed with which they achieved these levels” (Feldman, 1980 quoted in Carmel, 1994, p.6).

### *Psychometric perspective*

The psychometric approach deals with the products of thought and interpersonal differences in these products (Berk, 1989). Guilford (1956) added the concept of creativity, while differentiating between two types of thought: focused thought – measured using intelligence tests with quantitative elements, and diversified thought – an original and flexible process.

### *Cognitive perspective*

The cognitive approach attempts to explain what the psychometric approach describes, or to provide reasons for the observed interpersonal differences. This approach is actually an analysis and dismantling of psychometric assignments. Dark and Benbow (1993) recommend that gifted individuals are not different in the way they present problems, but in the amount of accumulated information that they have. A wide basis of knowledge, in many fields, improves the general ability to solve problems and, according to Jackson and Butterfield (1986), Freeman (1991) and Montgomery (1996), includes command of knowledge accumulated in the memory, organization and processing of the information, identification of problems and determining an order of priorities. Campione and Brown (1979) characterized the gifted students from a cognitive approach and claimed that they are faster in storing and extracting information to/from the memory. On the other hand, Davidson (1986) focuses on insight, which she describes as a “step up”, which explains the unusual achievements among the gifted students.

In summary, traits of the content dimension explain expressions of gifted children's potential based on their general environment and personality, developmental and cognitive traits.

The definitions of the concept and the theories provide guidelines to describe the gifted individual.

### **2.5.5 The profile of the gifted student**

The gifted child is seen as a person who attains high achievements by taking advantage of his/her abilities. However, Betts and Meihart (1988) described six profiles of gifted children.

Type A - the successful gifted child: 90% of the gifted children are included in this category. Goertzel and Goertzel (1962) note that these gifted children do not fulfil their full potential and lack imagination and creativity.

Type B - the creative gifted child: many gifted children of this type are not identified as such in the educational system, an issue that is reinforced by the theories of Tannenbaum (1983), who relates to giftedness at a young age as potential.

Type C - the underground gifted child: according to Kerr *et al*, (1988) young women during adolescence are found to be this type when the social issue and the need to belong are more important than fulfilling their talent abilities.

Type D - the dropout-gifted child: in the description of this type of gifted child, giftedness in a specific field that does not belong to the school framework is emphasized. Therefore, such children do not always merit support and recognition until a relatively late stage.

Type E - the gifted child with the double label: such gifted children that suffer from a physical or emotional disability. The educational system does not identify their skills and sometimes ignores them.

Type F - the gifted child who is an autonomous learner: such gifted children recognize their ability, their self-image is positive; they succeed, are supported and are achievers. They are independent and take advantage of the system to achieve goals and challenges that they set for themselves (Rosmarin, 1989).

In summary, the typology - the description of the six profiles of types of gifted children - clarifies that, despite the fact that gifted children are perceived as individuals who have higher achievements; this is not evident in all six types.

### **2.5.6 The image of the gifted individual**

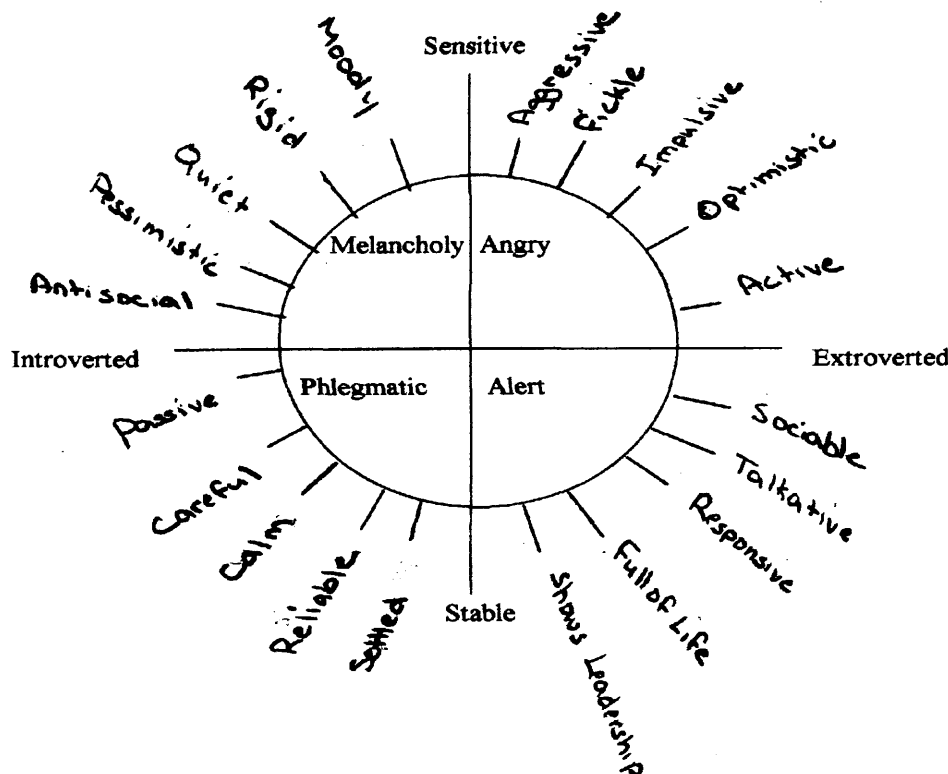
In the professional literature, gifted children are characterized via cognitive, social and personality aspects. Among the assemblage of traits we can note the most common ones: abstract thought on a higher than average level, curiosity, resourcefulness, memory, the ability to consume large quantities of information efficiently, an original approach to problem solving, rapid progress in studies, commitment to attaining goals and autonomy in behaviour (Nevo, 1997).

#### *Personality*

The personality perspective section includes traits and characteristics of the gifted children in different fields of interest. Personality means all of the individual's characteristics which differentiate him/her from others. Researchers such as Tannenbaum (1983) and McClelland (1973) reported that there are additional factors that are related to defining gifted children which aid in fulfilling the intellectual potential of the gifted child. These are personality, society and environment. They added psychological approaches to the personality dimension including the factors of heredity and development. According to Zixiu (1993), natural heredity only provides the potential for development. Social approaches of adjustment and acceptance, including environmental factors such as the family, determine that excellence is created by internal personality traits and by external environmental characteristics. These factors are in "continual interaction that determines if the potential for exceptional achievement will be fulfilled" (Nevo, 1997, p. 453).

Researchers are in agreement regarding the importance and contribution of personality in fulfilling the intellectual ability of the gifted child; however, they do not succeed in agreeing on a definition of the term. Every psychological theory explains the concept differently, apart from two concepts, introversion and extroversion, which have become a common denominator in many theories. Eysenck and Eysenck (1969) developed a theory explaining personality that placed the two concepts on a central

axis (as shown in Figure 2.12). In their model there are two axes. On the first axis, the extroverted individual appears on one side. This individual needs social ties and is impulsive. On the other side, introverted individuals appear; they distance themselves from society and are not excitable. The second axis has, on one side, the excitable person who tends to have moods, is sensitive and anxious. On the other side is the stable person who does not show emotions.



**Figure 2.12 Personality Types According to Eysenck (Eysenck and Eysenck, 1969)**

Eysenck terms this axis the "neurotic axis", in Israeli terms, the "excitable axis" (Ziv, 1990). Ziv emphasizes that in most humans there is a mixture of the introverted and extroverted traits. However, sensitivity paralyzes the student's actions, does not allow him to express his potential, or distracts his attention. We can find a combination of the two axes in Porter (1999, p. 72), who divides expressions of common emotional characteristics of gifted children between positive and dysfunctional. For example:

<i>Sensitivity</i> →	<i>Imagination</i> →	<i>fear</i>
<i>Social perceptiveness</i> →	<i>Leadership</i> →	<i>isolation.</i>



Dauber and Benbow (1990), Torrance (1970) and Haggard (1957) agree with the opinion regarding isolation, withdrawal and sensitivity. They claim that the gifted students are valued because of their intellectual ability, but they are not accepted by society. The research done by Terman and Oden (1959) and by Hollingworth (1942) disproved these claims, and researchers such as Gallagher (1966), Marland (1972), Martinson (1973), and Trost (1993) identify the gifted students with social adjustment and recognition of them as social leaders.

In summary, the professional literature testifies to two conflicting approaches regarding the emotional and social difficulties of the gifted students. According to Webb (1993) the truth is found between the two extremes.

The individual's personality is formed throughout his life, but is expressed significantly during adulthood.

### *Maturity*

Maturity is defined as "a cumulative developmental product in the direction of improvement, sublimation and complexity" (Gutman, 1978 p. 1). A cumulative developmental product is defined as including all of the accumulated impacts of heredity, environment, past experience and cognitive development and their impact on the design of the child as a person (Ziv, 1984). Theoretically, the continuum of development is similar among all children, but the rate of development differs from child to child and is related to environmental factors. The direction towards cognitive maturity of the child, determined by the way in which tasks and roles are performed, and intellectual maturity expressed through vocabulary, language structure, problem solving ability and memory, is considered to be the central role of the school system (Ben Yosef, 1972). Piaget's theory that dealt with cognitive development is based on hereditary and environmental factors. Piaget claimed that the child's development takes place in fixed stages, and each stage allows the child to be mature enough to have more complex cognitive skills than in a previous stage (Piaget, 1950).

Emotional maturity is seen, among other things, in openness towards attitudes and sensitivity towards others. The ability to pay attention and concentrate is also a sign of emotional maturity. It has a great impact on creating motivation and willingness to

learn. Another trait is the ability to control emotions on the one hand, and the ability to express emotions properly on the other hand (Gutman, 1978). One of the clear traits of a lack of emotional maturity is dogmatism, or sticking to one particular viewpoint without considering others (Landau, 1990). Different studies have shown that the trend towards dogmatic thought declines with the age.

### *Self-image*

What is the label “gifted” and how is it expressed in social self-image and social involvement? One of the ways that the individual receives information about himself is via social comparison. From the moment the student is identified as gifted and is chosen to learn in a special framework, the difference between him/her and other students is more obvious. This situation exposes him/her to labelling processes that ignore his/her personal traits and put him/her in the category of the gifted students. Studies done by Colangelo and Kelly (1983), Colangelo and Brower (1987), and Delisle (1987) that deal with labelling the gifted students, show the ambivalence that people attribute them. On the one hand, many tend to attribute them traits such as isolation and strangeness; on the other hand, their status is seen as high and they are an subject of value, especially among parents and teachers.

In addition, the label of "gifted" may separate the students from their peers, because peers may react with teasing, jealousy, and hostility. The positive traits of the gifted child do not ensure acceptance or esteem from the peer group. A lack of acceptance by the peer group, exaggerated expectations from the teachers, and a feeling of pressure imposed by the system, may lead to difficulties in adjusting and may damage the well-being of the student. Stressful expectations on the part of parents are related to high levels of anxiety about tests and a lower social and educational self-image (Shleir and Shield, 1996).

Self-image connects the ego to society and the environment. The gifted children are aware of their unusual abilities (Trost, 1993) and their positive self-perception provides them with the confidence to set aims and improve achievements. The individual compares himself or herself to those surrounding him. According to Wells and Maxwell (1976), there is a high level of coordination between self worth and social adjustment.

In summary, self-image has become an important factor in fulfilling the gifted child's potential (Whitmore, 1980). However, there are no consistent findings in researches regarding the self-image of gifted children compared to the normative population.

### *Motivation*

Motivation includes diligence, achievement, commitment and ambition. However, motivation without high ability will not lead to achievements and without motivation and commitment to a goal, nothing will be attained (Renzulli, 1986). Robinson (1993) claims that motivation is an important factor in determining gifted children's achievements. Trost (1993) reinforces the claim that motivation is the most significant predictor of excellence. It is possible to differentiate between internal motivation based on the individual and relating to internal needs, and external motivation based on stimuli from the environment leading to a behavioural reaction. In both cases, motivation is divided into physiological and psychological social stimuli.

Sternberg and Lubart (1992) warn that external rewards may endanger the principles of internal motivation. They differentiate between motivation and the need to achieve, which they saw as one of the factors behind gifted children's achievements. This theory reinforced McClelland's (1965) claim that the need to achieve is a motivational factor. Robinson (1993) related the concept of the need to achieve to responsibility, autonomy, self-discipline, initiative, independence, self-fulfilment, satisfaction, and realization. According to Gutman (1978), achievements of the past are the best predictor of achievements in the future in a specific field. Rosmarin (1989) also related to these traits. In her opinion, they can be found in the autonomous type (F) of gifted student who has personal strength and internal self-control.

### *Creativity*

Is there a connection between intelligence and creativity? The researchers are divided in their opinions about this question. Hollingworth (1942) assumed that intelligence included creativity. However, according to Davis and Rimm (1985), "it is important to distinguish between creativity and intelligence" (p. 28).

Torrance (1962) defines creativity as a process of seeing something that is not complete, seeing the missing pieces, examining hypotheses, processing them, changing them and reporting. According to Kaspi (1972), creativity is something organic and whole which encompasses all other areas of education such as social, intellectual, and aesthetic. Freeman (1991) claimed that creativity is “the electricity of the intellect” (p.94). The researchers Gowon and Demons (1964) perceived creativity as the basic quality in the humans’ spiritual abilities. Renzulli (1978, 1986) defined creativity as the ability to think flexibly and Sternberg (1985) found creativity in synthetic giftedness.

Creativity is characterized in five methods of expression: development of perceptions, originality, openness, self-fulfilment, and brilliant ideas (Amabile, 1987; Ziv, 1998). The creative individual internalises these expressions and they are drawn according to six patterns of behaviour: sensitivity, flow of ideas, flexibility, originality, excellent ability to perceive, and commitment to work (Feldhusen and Goh, 1995; Nevo, 1997). These definitions and perspectives can be explained from two viewpoints: the difference between creativity and intelligence and the connection between them. In the past, it was thought that creativity was based on intelligence and that creative thought was possible only with a high level of intelligence (Barron, 1969).

Wallach and Kogan (1965) found that there is not a high correlation between creativity and intelligence. Therefore, creative thought is not necessarily found among students with high intelligence, and original thought should be encouraged in an average class (Gutman, 1978). Getzels and Jackson (1962) differentiated between types of students according to their intellectual talents. One type was listed as students who reached high achievement in focused thought; they classified these as “high intelligence”. The second group was students who excel in diversified thought; these were classified as “high creativity”. The connection between intelligence and creativity appeared to be necessary for Guilford (1959, 1962), who differentiated between focused thought, which delves to receive one single correct solution measured on intelligence tests, and diversified thought, which delves towards finding, in a creative way, many possible solutions to problems that have a number of correct solutions.

Marland (1972) in defining giftedness, related to intellectual creative thought and operative creative ability. Milgram and Milgram's (1976) model also related to overall and specific creativity versus general and unique intelligence. Rosmarin (1989) finds that the creative gifted type is not identified as gifted in the educational system and reinforcement for her words can be found in Tannebaum's (1983) model of giftedness, which only speaks of the potential for giftedness.

### *Teaching and creativity*

Martin Buber (1926, quoted in Bean and Arlozorov 1979) claimed: "Creativity lives greatly inside the human, on the insides of humans, it only needs proper development" (p.114). He added: "Freeing the creative powers is only the introduction to education and no more" (p.114). Society attempted to cultivate creative thought, curiosity, openness, originality and motivation in the school framework (Bean and Arlozorov, 1979). For many years, the educational system cultivated focused and habitual thought, and today the new curricula are aware of the need to encourage creativity and originality. Among educators and parents there was a great deal of agreement regarding the importance of cultivating creative talents in the child. The cultivation of creativity in the educational situation requires that the teacher understands the creative process and its expression in educational activities, accepts ideas, creates a varied educational environment, and develops areas of interest and research that increase the significance of the learning process (Bean and Arlozorov, 1979).

Today, in the transition to a competitive society, there has been a change. "Striving towards achievements" characterizes the work of many teachers. When looking at educational situations there are gaps between the stated outlook of teachers and their action. Perhaps because teachers feel that "learning should make the unfamiliar familiar, while creativity is the process that makes the familiar unfamiliar" (Gordon, 1972 p. 6). According to Mednick's (1962) study, creativity is connected to the ability of the individual to create a spontaneous process of clusters of associations connected to each other. This ability reflects a basic element of the individual's cognitive style. These findings reinforced the claim that "lack of order" can testify to the existence of "creative talents" that must be located and considered by teachers and educators (Levin, 1973).

In the first part of this section, I discussed the image of the gifted child. The second part will focus on identifying the gifted child and satisfying his/her intellectual and creative needs through effective provision. According to Tannenbaum (1986), an encouraging society and supporting environment, is one of the factors responsible for fulfilling/realizing the potential of the gifted individual.

### **2.5.7 Society and environment**

#### *Social adjustment*

Socialization is the process via which the children develop into adults who are active in society. In this process, they learn the accepted forms of behaviour in society; they learn to be integrated in the family, the environment, the community and in society.

In the first stage of their approach to social relations with their peers, the children generalize the reactions, traits and behaviour they acquired at home. They try them out in society and examine their friends' reactions. Many reactions are accepted by the friends and increase their social status. Interest in friends is accompanied by interactions after which social skills improve (Shay, 1976). Being gifted student is a mutual system that exists between the internal world of the child and the world surrounding him/her.

Acquiring social skills requires time and practice. Gifted children, because of their many activities, may have very little time left for social activities and, since social skills are greatly a matter of practice, perhaps the gifted children do not have enough experience in activities with their peers. This may lead to a lack of confidence and gradual distancing. Since appropriate friends are few, it may be that the gifted children will become used to a limited social pattern, and their need for belonging will be low. Therefore, they will choose a limited number of friends. Socio-economic status and race are significant factors in social acceptance. Children tend to choose friends with similar backgrounds. Economic and social background, ethnic origins and other factors affect the social status of children, including gifted children.

For many years there was a certain image of the gifted students. They were perceived as lowly and unattractive (Shay, 1976). Different researchers have determined that the gifted students have personal and social difficulties, and have difficulty making

friends in a heterogeneous class where children have a mental age lower than theirs. As a result, the gifted student may experience social isolation and, sometimes, even encounter jealousy and hatred (as a result, possibilities were examined for transferring the gifted to homogenous classes). They may also avoid social or political activities (Hollingworth, 1942; Hildreth, 1966; Torrance, 1970; Bloom, 1982; Ziv, 1990; Webb, 1993). Terman *et al* (1925), in his basic study, decided that they were rated higher in seriousness, did not show superiority, were accepted by society, and were respectful towards authority (Hollingworth, 1942; Gallagher, 1958, 1966; Martinson, 1973).

Socialization has great impact. School is one of the three factors mentioned in Milgram (1989) and Monks *et al*'s (1992) models. Students in a wide age range spend a large amount of time between school walls and during this time they are exposed to information and mutual personal relations with their teachers and friends (Ministry of Education, Department of Education, 1996). Findings regarding students' attitudes towards school raise a question regarding the ability of the regular school to satisfy the educational stimuli that gifted students need in order to fulfil their talents, self-image and social involvement (Shleir and Sheild, 1996).

Researchers note that the teachers are additional factors that determine the status of the gifted student in the class. Their attitudes, relationships and evaluations affect the adjustment of the students, their self-image and social status in the eyes of the other members of the class (Johnson and Medinnus, 1974).

We can conclude that social tendencies of gifted students, their personality variables, and the environment, in which they function, affect and feed one another (Halfon, 1996).

#### *The responsibility of the environment and society for cultivation of the gifted child*

A common approach among the public is that gifted children are the "problem" of their family and they must deal with it. This is also the guiding approach among the authorities regarding the education of the gifted child. When discussing "society" its needs may oppose the needs of the child. What arguments can be used to convince the public regarding the importance of appropriate education for the gifted students, education that it must at least partially finance? The answer can be found in Landau



(1990) who, in her approach, combines seeing the gifted child as an individual, requiring all the support, encouragement and psychological understanding that can be provided, with the broader outlook of the society the child will be part of in the future (Landau, 1990). Experience in social relations is an important factor in progressing towards self-fulfilment and awareness of their abilities. If society is interested in getting the most out of the potential of the gifted child, there is a need to develop involvement, personal responsibility and help them adjust (David, 1997; Rosmarin, 1989; Landau, 1990).

In recent years, emphasis has been given to developing and cultivating intellectual skills, planning educational frameworks and teaching methods, and cultivating creativity. Little attention is paid to the personal and social adjustment of gifted children, although this is very meaningful for future life. It is important for gifted children to go through the socialization process to develop their emotional health and improve their function in society. Emotional encouragement from the environment provides the child with the courage to use his/her talents (Landau, 1990).

In summary, it can be stated that the gifted child develops an accumulation of social relations that are ingrained in the daily frameworks of the family and home. Parents, teachers and society must facilitate their personal and social adjustment.

#### **2.5.8 Locating and cultivating the gifted student**

The issue of locating the gifted children is related to defining giftedness and stems from it, as perceiving the essence of giftedness dictates the leading factor in cultivation programmes and the method of choosing the candidates. (Nevo, 1997, p. 474)

The first step in supporting the gifted child is to set up an identification system to decide on the criteria in selecting them. According to George (1995) the process can be categorized into three areas:

1. Use of rating scales and checklists.
2. Different types of tests.
3. Teacher appraisal.

“This process has been stimulated by a desire to gain more information about them in order to give them appropriate educational programmes” (p.8). It is recommended that

teachers, consultants, parents and the class peers will be involved in this activity. Locating gifted children by intelligence tests or achievement was based on two assumptions: giftedness can be measured and is a relatively stable personal trait; the results of the test predict the achievements of the gifted student over a long range of time (Goldring, Milgram and Chen, 1988). Testimony from accumulated experience, and from research, has raised questions regarding these two assumptions, because the information received from the tests relates to general intellectual skills and there is no way to hypothesize what fields the students will excel in. According to Landau, (1990) this method of identification can lead to a loss of skills in society. From studies done by Guilford and Renzulli (Zorman, 1989) we can conclude that the gifted students who have achieved unusual achievements in a certain field were not located through intelligence tests.

The recommendation has been to go back and weigh the possibility of including the educational faculty in the identification process. Teachers, principals, psychologists and consultants will locate about 15 percent of the students with the highest abilities (David, 1997), and these will be considered to be the talent pool (Renzulli, 1977 quoted in George *et al*, 1979).

In Israel the process of identifying gifted students takes place via the “Szold Institute” (The Israeli Institute for the Study of the Behavioural Sciences). The staff of the Institute has developed a method of locating potential among students with high educational ability in elementary school and, as a result, initial filtering tests are given to students in 2<sup>nd</sup> to 3<sup>rd</sup> grades. The point at which the decision is made about recommending a student as a candidate for education aimed at the gifted students is uniform countrywide and includes 15% of the students who achieve the best results. In the second stage, a location test is distributed (these are group tests that examine only cognitive skills) with which students, who have passed the first filtering stage, are tested. This stage identifies the 1 to 1.5 percent of students.

Today students are chosen via tests and based on informal information such as achievement tests, teachers’ recommendations, parents’ recommendations and additional criteria selected by the local authority. In this way, it is hoped that the children with high levels of achievement and creativity are chosen, along with children who show high levels of ability in a certain field (Rosmarin, 1989). For many

years students who have reached the first stage of the "Szold" selection could participate in the CSK project. However, presently the Szold Institute is not involved in locating students for the CSK project because of the cancellation of the achievement tests and their exchange for the recommendations.

This identification process determines which students are recommended for participation in the variety of programmes for cultivating gifted students operated by the Ministry of Education and the local authorities. The existence of special educational frameworks for gifted students reflects a national policy that determines that these students must be cultivated and preference must be given to developing their hidden potential. Behind this determination is the opinion that the regular educational system does not have the ability to satisfy the special needs of the gifted population and that both the individual and society will benefit from this special treatment (Shleir and Sheild, 1996).

In summary:

- 1) "Identifying the gifted is far from being an exact science" (George, 1995, p. 30).
- 2) The need for cultivating gifted and talented students stems from the desire to provide a response to each unique group within separate frameworks. The CSK project is included in an enrichment framework that allows the gifted students to be exposed to various fields of knowledge not included in the formal curriculum.
- 3) "A close relationship should exist between the concepts of giftedness..... characteristics of the gifted.....identification and programmes of learning for them" (George, 1995, p. 30).

This second section of the literature review has dealt with two main topics: defining giftedness and identifying the gifted child.

If the gates to excellence are opened and closed only as a function of the abilities typically considered, we run the risk of...closing these gates on some of the most able children, who will be blocked from making the contribution that they potentially could make. (Porter, 1999, p. 13)

The third section of the professional literature review clarifies the essence of the concept of enrichment programmes within the frameworks of cultivation of the gifted

## **2.6 Enrichment Programmes for the Gifted students**

Identification of the talented is pointless unless it leads to special treatment aimed at facilitating the development and continuance of their special abilities.  
(Freeman *et al*, 1995, p. 109)

Following the debate on the concept of "intelligence", if we think that giftedness is a high innate ability measured by IQ tests, then the implication for the education process will be identifying the gifted individuals for whom the educator should provide educational settings to nurture and develop these abilities and talents. However, this could be problematic as it might "easily lead us to the suggestion that special schooling and segregation provision were necessary" (Montgomery, 1996 p. 217). If we accept the expanded definition of talent and giftedness, then we must encourage the use of different strategies and activities in the educational system for a large number of people with above average ability. According to Rogers (2002) developing and enriching this educational plan must involve parents, teachers and the school administration. The goal is to achieve collaboration and involvement between these stakeholders.

The field of enrichment programmes dealing with cultivation of the gifted students includes a number of points of contention. The basic disagreement is whether there is justification in investing in unique education for the gifted students. Those who oppose allocating financial resources claim that it creates a gap between the gifted students and all others. Those who support special education respond "that democracy and social fairness require providing an equal opportunity to every individual to fulfil his personal potential" (Nevo, 1997, p. 498). They claim that this is a long-term investment that will serve the interests of the country. Cultivation of the gifted students does not mean "giving special privileges or rewards to a selected few" (Vernon *et al*, 1977, p 176). The question regarding unique educational frameworks is mainly a moral one for limiting the social gaps. The existence of special study frameworks for the gifted students reflects a policy rather than a plan (Barbe and Renzulli, 1975), which determines that it is necessary to cultivate the gifted students

and give preference to developing their potential. In some ways, many of the things which we might want able children to be - curious, independent, seeing the whole picture, expressive, enthusiastic, able to concentrate, original, self aware - are in fact part of good provision for all children.

Gifted students who learn in heterogeneous mixed-ability classes in the regular educational system sometimes have difficulty finding their place because of their special needs. Therefore, there is reason to “enrich” them “in limited homogeneous frameworks in some issues, which have particular importance in education of the children” (Eyre, 1997, p. 85), like accelerated pace and high expectations. Terman and Oden’s 25 year follow-up study (1947) clearly indicated that there was a need for specific educational programmes for the gifted students requiring high levels of abstraction. Porter (1999) agrees and adds “that much of what is offered to all children will be suitable for gifted children as well. However, some adjustments to a regular programme will be needed” (p. 168).

#### **2.6.1 Meanings of the concept enrichment**

The term “enrichment” came into fashion in the 1930s when Hollingworth and others decided, “it was better to keep the able with their social age group” (Montgomery, 1996, p. 71) within the school. However, they determined that it is necessary:

- 1) To enrich the curriculum (Gallager, 1968; George, 1979), in order for their lives to be lived more abundantly (Bridges, 1973);
- 2) To allow them advanced study beyond the regular curriculum (Hildreth, 1966; Shields, 1968; Renzulli, 1977; Vernon *et al*, 1977; Sanderlin, 1979; Montgomery, 1996; Davis and Rimm, 1985), “and outside the core of learning” which most children undertake (Eyre and Marjoram, 1990).

Enrichment means the variety of topics that will be included in the learning materials as well as educational activities and the learning experience. It will lead to critical thought, creative skills and qualify pupils with personal and social responsibilities (Gallager, 1968; Vernon *et al*, 1977; DES, 1986).

The additional materials, such as a. topics and products, b. study in depth, c. complex subjects d. a level of difficulty in understanding and processing the information, are vital and essential for the gifted/able children but quality of contents are more

important than quantity (Tempest, 1974; Congdom, 1978; Davis and Rimm, 1985; DES, 1986; Marjoram, 1988; Eyre and Marjoram, 1990). This additional provision can be taught within schools, where teachers set out to match work in the classroom to different abilities of pupils, by multi-stage tasks, rate of progress and appropriate levels of outcomes/achievements (HMI, 1992). There are those who relate to enrichment as a programme that have to be operated outside the classroom (in the library and learning centres) or outside the school framework and academic and activities should be engaged in outside school hours (Hopkinson, 1978) or on weekends and in summer camps, (Bridges, 1969).

In summary, enrichment is a process by which learning is an organic, growing, never ending, but ever “fascinating journey”, enlarging horizons, solving problems, experimenting with new materials and new ideas. This does not replace education, but is found within it as an additional stage in suiting it to the unique needs of the gifted/able.

### **2.6.2 Programme provision**

From the literature and research we can conclude that there are many possible educational options for gifted children. They can be divided into two sections: provision in school or provision out of school.

1) In school - "Enrichment is the butter between the bread of a standard school curriculum" (Freeman, 1991, p. 215). There are many instructional techniques to deliver the curriculum to the students. One is to modify the curriculum of the gifted and talented students "to better match the curriculum to their academic abilities " (Rogers 2002, p. 73). According to Maker (1982) there are three components of curriculum, the content, the process/methods and the product/outcome, which the teachers can suit to all students, included the gifted students. This is reminiscent of the theoretical model of intellect structure of Guilford (1956) who describes the structure using a cube model with three dimensions: content, activities and products. Managing this curriculum must be different because the differences in students' abilities and interests mean that their individual needs are different and therefore the response must meet the appropriate learning experiences (George, 1995). This can be performed in several ways.

- Individualization – for a single child.
- Grouping – for small group or whole class strategies.
- Acceleration – This means "progress through educational programme at rates faster or ages younger than conventional" (George, 1979, p.24).
- Enriching the curriculum through three levels: exposure to new ideas and skills, extension of the regular curriculum and learning a subject in depth.

This educational planning for enriching gifted students requires collaboration with the parents, who were described as one of the stakeholders. Parents generally are familiar with their children's abilities better than other individuals, and therefore, it is their obligation to transmit data regarding the attributes of their gifted child, his/her skills, and unique abilities (Rogers, 2002). The more detailed and comprehensive data parents transmit to the school, the more effective the enrichment programme planned for their children will be.

The question that must be asked is: Can parents do this in an objective way?

The answer is, yes, in most cases, because parents are witness to their children's different forms of behaviour, such as early development of speech and reading.

If we accept the wide definition of "giftedness", as discussed earlier, then the role of the parents becomes even more important, than if we define giftedness in narrow IQ-type terms, because of the wide range of abilities and talents of the gifted students.

Rogers (2002) sees the dialogue between parents and the school as "somewhat like high level negotiation" (p xvii). Parents have the right to demand that the school construct individual curricula that will suit their gifted children. This idea requires willingness on the part of the school staff to accept the task, and together with parents, construct a programme that will manage to challenge the gifted student. Such planning is a complex and difficult assignment, but is worth the effort.

In my opinion, individual programmes in the classrooms, constructed through co-operation with teachers and parents, will not last, because of the high investment necessary by the teachers, the necessity for parents to continually track the situation, and a lack of measurement tools for assessing achievements and progress.

Rogers (2002) admits that

No matter how well developed and reasonable the educational plan, it will probably not be fully implemented by the school for reasons of time or money or both. It will be important for parents to take on whatever aspects that school can not carry out (p 395).

Therefore there is room for enrichment activities outside of the school walls.

2) Outside of the school - Gifted programmes cost more because teaching is done in small groups; this is related to the perception of what giftedness means. For example, Milgram's model (1989) refers to individual differences expressed in the personality of the gifted student. In her model, she includes the educational frameworks which must relate to the unique needs of each gifted child and provide educational opportunities for developing his/her potential. This cannot be done in large groups. They need trained teachers and special materials. Sometimes these additional costs cannot be covered by the regular budget and this reduces the services given to the rest of the school population. Therefore we find schools without the resources or the time to enrich the gifted students. This is one of the reasons why parents look for outside programmes providing enriched learning opportunities in specific areas which may interest the gifted student, interaction with other gifted children, development of special skills and learning "a variety of problem solving strategies that will help in social, real world, and academic situations" (Rogers 2002 p. 329).

Another reason for outside enrichment activities may be the public-moral factor connected to elitist perceptions. Schools consider it unethical to provide additional educational options to fulfill gifted students' needs and they avoid steps which could create an elite group.

Examples of extra-curricula enrichment programmes can be found in:

- \* Saturday and Sunday programmes which offer a number of topics that are taught by volunteer trained teachers, usually from college faculties, or by community experts. The programmes are designed to increase the development of a high level of thinking and creative skills.
- \* Summer programmes which provide enrichment opportunities sponsored by the



universities.

- \* Summer camps that stress the social dimension and communication skills which develop self-esteem in gifted students.
- \* Resource centres with enrichment activities such as "Future Problem Solving" and "Olympics of the Mind" both of which are national projects in the USA.

These examples relate to theoretical models of the structure of giftedness, i.e., cognitive abilities in Guilford's model, (1956); the ability to cope with problems which require analytical ability in Sternberg's "Triarchic theory" (1985); a broad range of skills, including creative thought, in Marland's definition (1972); the personal traits that are necessary for the appearance of giftedness, such as commitment, perseverance and self-image, as represented in Tannenbaum's psychosocial approach; and social abilities, which are related to communication, leadership and self-awareness as found in Gagne's model (1995).

We can summarise that enrichment programmes are essentially aimed at satisfying intellectual, creative, emotional and social needs.

Cultivation frameworks for gifted and talented children in Israel and worldwide are many and varied and can be positioned on a continuum, beginning with extracurricular frameworks that operate outside of the regular school programme (to which the CSK programme belongs) and ending with intra-curricular programmes which operate within the schools in a number of fashions.

### **2.6.3 The traits of enrichment programmes**

The researchers Gallagher, Stanley and Tannenbaum, who wrote about curricula for the gifted students, differentiated abilities, emphasized methodology and agreed that the gifted students require varied fields of knowledge in which ideas relate to a high level of abstraction and they should be given the opportunity to choose the topics (Gallagher, 1964; Martinson, 1968; Passow, 1979, 1987; Shpitz, 1981; Tannenbaum, 1983, 1987). A cornerstone for enrichment is the interest the student has in it and the motivation created by that participation in it is out of honest and true desire (Renzulli, 1977 quoted in George 1979). Personal choice leads to satisfaction, enjoyment and enrichment activities, they have also to relate with respect to the student and his

learning styles. The population of gifted and able students, their intellectual, social and emotional needs, create a challenge for the planners of enrichment programmes. “If enrichment does not challenge a staff and its resources, then it is unlikely to be of any real value to the staff or to the gifted students” (Bridges, 1973, p. 113).

The success of a project depends on the scope, depth and ability to satisfy the curiosity and abilities of the student. It is related to transfer of responsibility for learning to the student who requires an opportunity for autonomous learning as a result of his unique personality traits; these include positive self-image, independent thought, maturity, motivation, consistency and perseverance, dedication and trust in ability. These allow fulfilling the potential of the gifted/able for unusual achievements (Martinson, 1968; Porter, 1999).

There are informal programmes (Gallagher, 1968; Toktelli, 1994), which are characterized by active and experiential learning based on varied teaching methods that will guide the students to analytical, abstract, critical and diversified thought. These will include skills in investigation and creating new knowledge in a process of brainstorming and creativity, learned via the technique of discovery and research (Vernon *et al*, 1977).

The enrichment project for gifted students discussed in the present study, determined at its inception that the curriculum must be divided into two fields. This was on the recommendation of Professor Evyatar (1979) who believes in the combination of science and art. An example of this can be seen in Bristol University in the UK, which held afternoon clubs using the same format (Rowlands, 1974). Art includes visual perception and experience with materials, versus the attraction to sciences reflecting the world of nature and the intellectual environment (Bridges, 1969).

#### **2.6.4 Criteria for enrichment programmes**

Enrichment programmes must be based on the individual needs of the gifted students, while relating to age, environment, values and culture (Goldring *et al*, 1988). They are intended to take advantage of the intellectual abilities of the gifted and to add to formal knowledge studied in the school framework.

The models presented in the book “Education of the Gifted and Talented” by Davis and Rimm (1985), are guides for general curricula constructed for all students but are used in the enrichment programmes for the gifted because of the criteria and traits that satisfy identification and definition of their needs. The models include recommendations for the following: broad scope topics, focusing on open ended issues and problems, varied subjects, comprehensive experiments, depth of learning, personal choice of study topics, independent study, complex and abstract thought skills, research methods, developing a product, encouraging and developing self understanding and evaluation. The criteria that are used to define the gifted create agreed upon structures regarding topics, methods and activities for the enrichment programmes, as presented in Table 2.1.

Criterion	Activity in the enrichment programme
Potential for excellence – beyond average, cognitive perspective	Complex and detailed tasks - examining depth of the issue
Speed of extracting information from memory	Broad fields of knowledge, interdisciplinary and varied - are examining the scope of an issue
Diversified and flexible thought	Criticism and logical thought
Focused and abstract thought and ideas	Level of evaluation (Bloom’s taxonomy), require creative theories
Perceptual efficiency, and analytical ability	Performance, application, analysis and synthesis (Bloom’s taxonomy)
Independence	Decision making process and autonomous learning
Initiative and originality	Presenting ideas, developing methods and techniques for planning the learning process
Creativity	Creative solutions
Intellectual ability	High levels of difficulty
Academic ability - problem solving	Use of sources of information, developing investigative skills, coping with true problems and creating new knowledge.
Perseverance and dedication	Interest, curiosity, desire and need to achieve through challenges
Motivation, responsibility and self discipline	Self direction, learning strategies for drawing conclusions, keeping a schedule
Leadership and social orientation	Work in groups and communication.

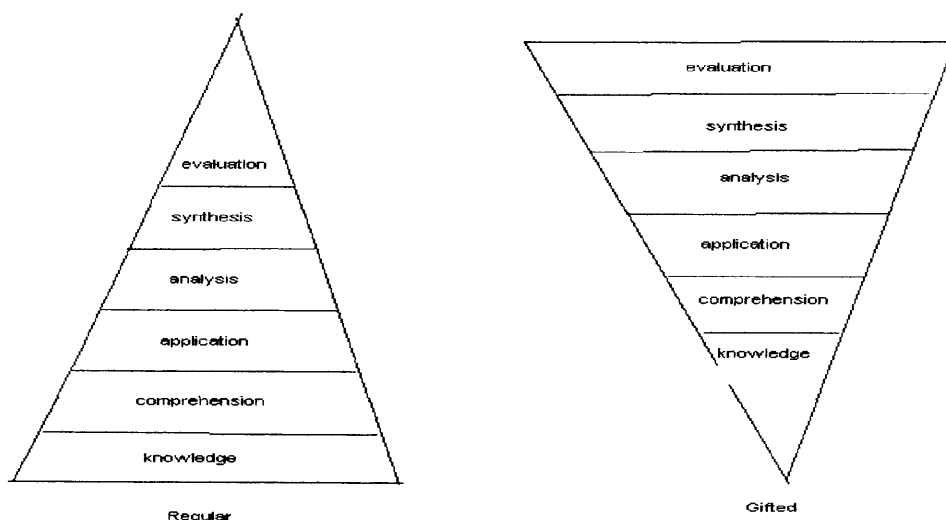
**Table 2.1 The Criteria**

### 2.6.5 Models of enrichment

"The idea of enriching the curriculum to meet the needs of able children has been developed to a sophisticated degree" (Eyre and Marjoram, 1990 p. 28) through models of enrichment. Bloom, in his taxonomy of objectives (1956), divided learning into six areas. The first three categories: knowledge, comprehension and application are found in most regular education programmes during the school day. The other three: analysis, synthesis and evaluation, aspects of 'higher' skills, require more complex thinking skills which can be taught to gifted students, who can adopt diverse approaches and strategies quite early in their learning.

These aspects are mentioned in Milgram and Milgram's (1976) 4x4 model which refers to the ability to think abstractly and to solve problems logically, and in the model of analytic giftedness – the world of internal thought and cognition described by Sternberg in his 'three worlds' model (1985). We may link this to the earlier discussion about the nature of giftedness when the concept examines the level of achievement that differentiates between the gifted and the regular child, and defines the traits and abilities necessary to attain these unusual achievements.

Based on Bloom's taxonomy, the pyramids Figure 2.13 illustrate the notion that, with gifted students, more time should be invested in higher-level activities and objectives, compared with the reverse for regular students.



**Figure 2.13 Based on Bloom's Taxonomy, (1956 quoted in Davis and Rimm, 1985)**

An additional example based on Bloom's taxonomy describes the building blocks model regarding thought (see Figure 2.14).

## BLOOM'S BUILDING BLOCKS

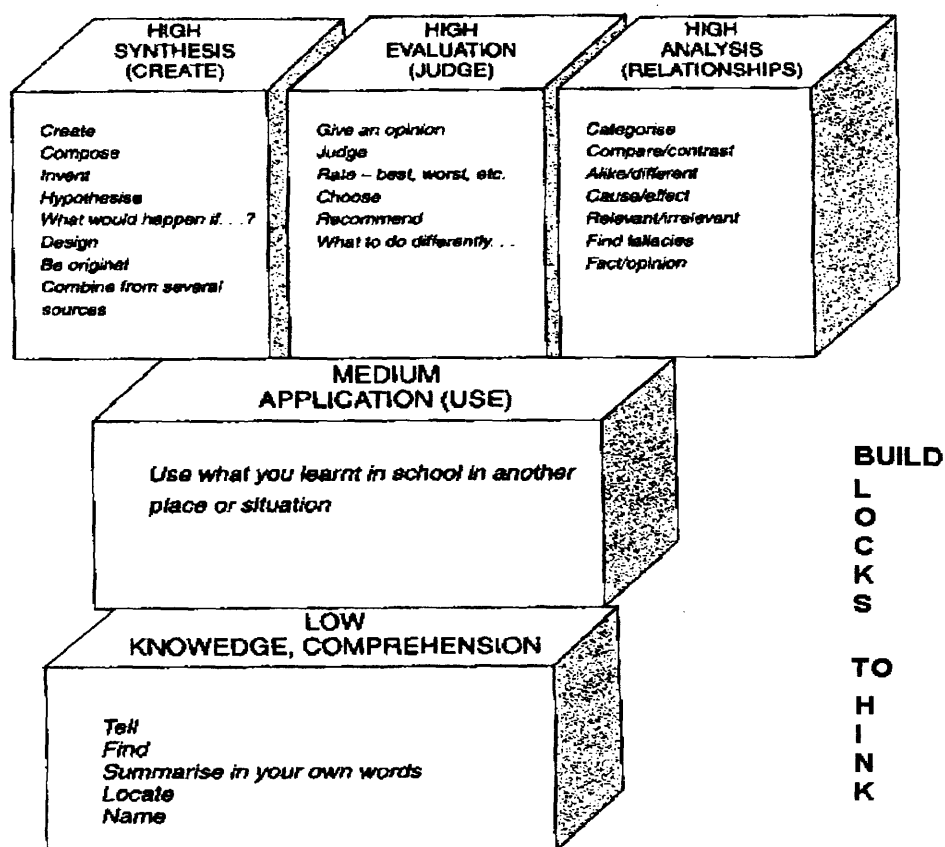
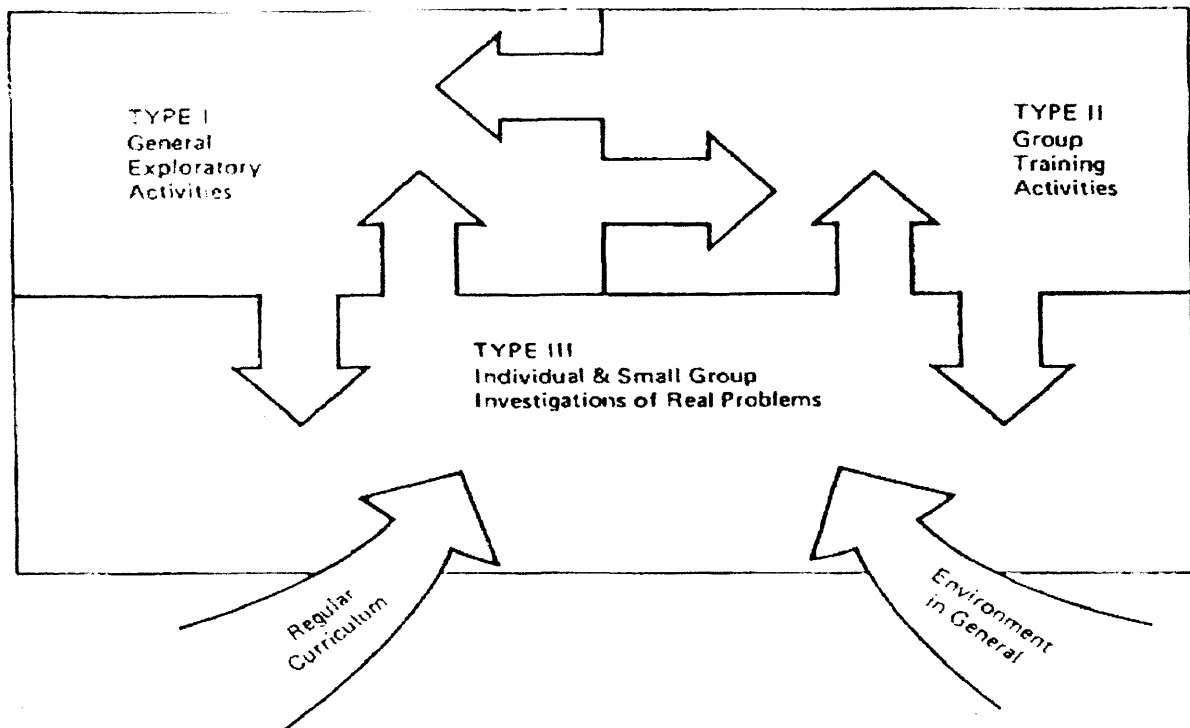


Figure 2.14 Bloom's Building Blocks (Eyre, 1997)

Renzulli (1977) developed a triad model which he used in developing programmes for gifted children. He divided his model into three different types of activities (Figure 2.15).

Renzulli's Enrichment Triad Model.



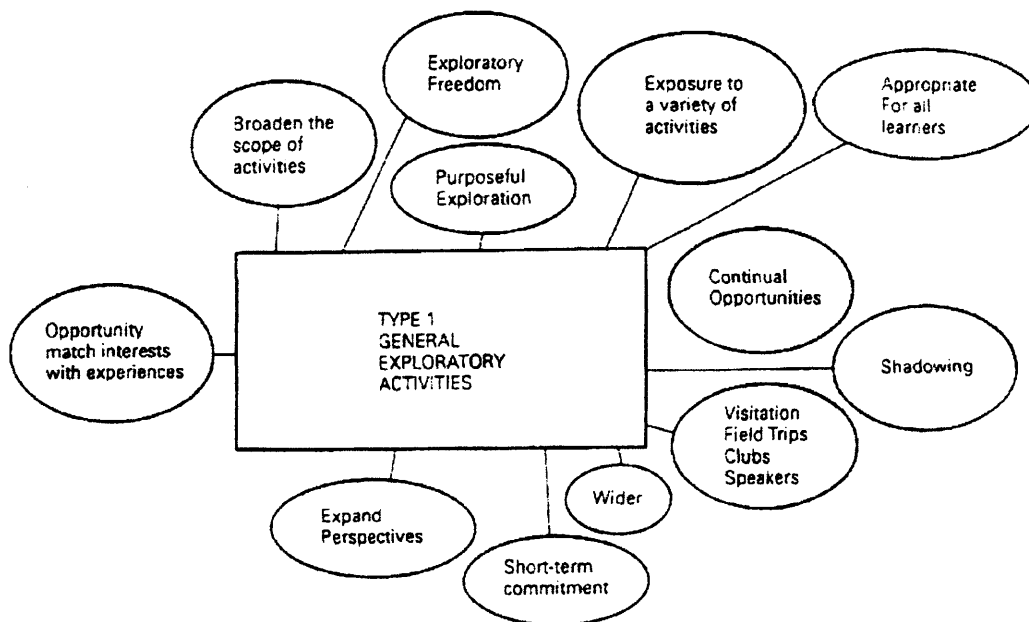
**Figure 2.15 Renzulli's Triad Model (1977)**

We can see that these types are closely linked and students can move between them freely. The dynamic transition is a function of the student's needs which arise during the process. The goals of the model are provision of different types and levels of enrichment and encouraging "broadcasting excellence" (Rosmarin, 1989). Type 1 and 2 may suit most students, but type 3 may be applicable only to gifted students. In all three activities the student is taking responsibility for his own work. This refers to personal qualities in performing tasks. High task commitment, including motivation and perseverance, is one of the three clusters described in Renzulli's three ring model (1978). What is unique about this model is that it allows location of students with the potential for giftedness in a variety of fields, and their cultivation in these fields.

According to Renzulli's model, 15-20 percent of students whose academic achievements are the highest will be considered to be the 'talent pool' of the school. The students will be identified using a number of criteria, formal tests and informal information such as the recommendations of teachers, parents and friends. The goal of

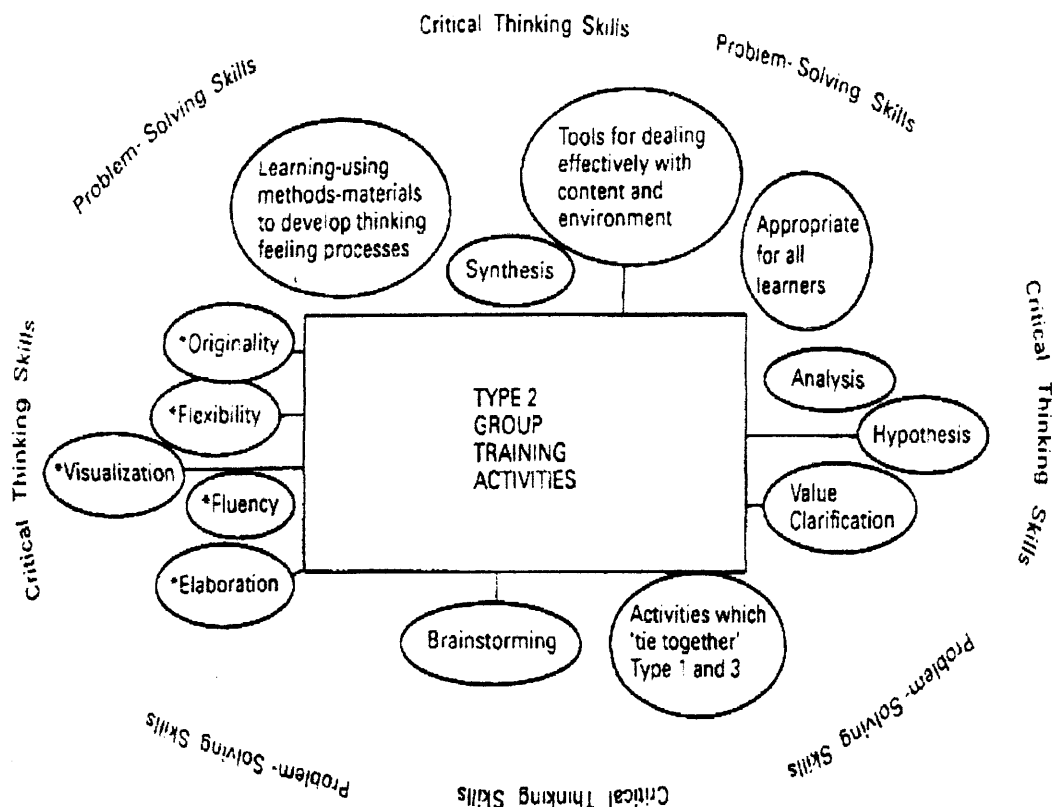
experiencing the model of enrichment is to aid students in taking advantage of their potential, to develop their perseverance, commitment and creativity, which will be combined with their general high abilities and ensure the existence of giftedness (according to Renzulli's definition of the concept).

The goal of the first type of experience in the model (see Figure 2.16) is to expose students to a wide variety of fields and types of information.



**Figure 2.16 Type 1 in Rinzulli's Model**

"The second type of activities follows the Bloom pattern more closely "(Eyre and Marjoram 1990 p. 39) and focuses on developing learning and thinking skills while teaching work habits and investigation skills, developing specific skills necessary for dealing in the different fields, while making the student into an independent and autonomous learner (see Figure 2.17).



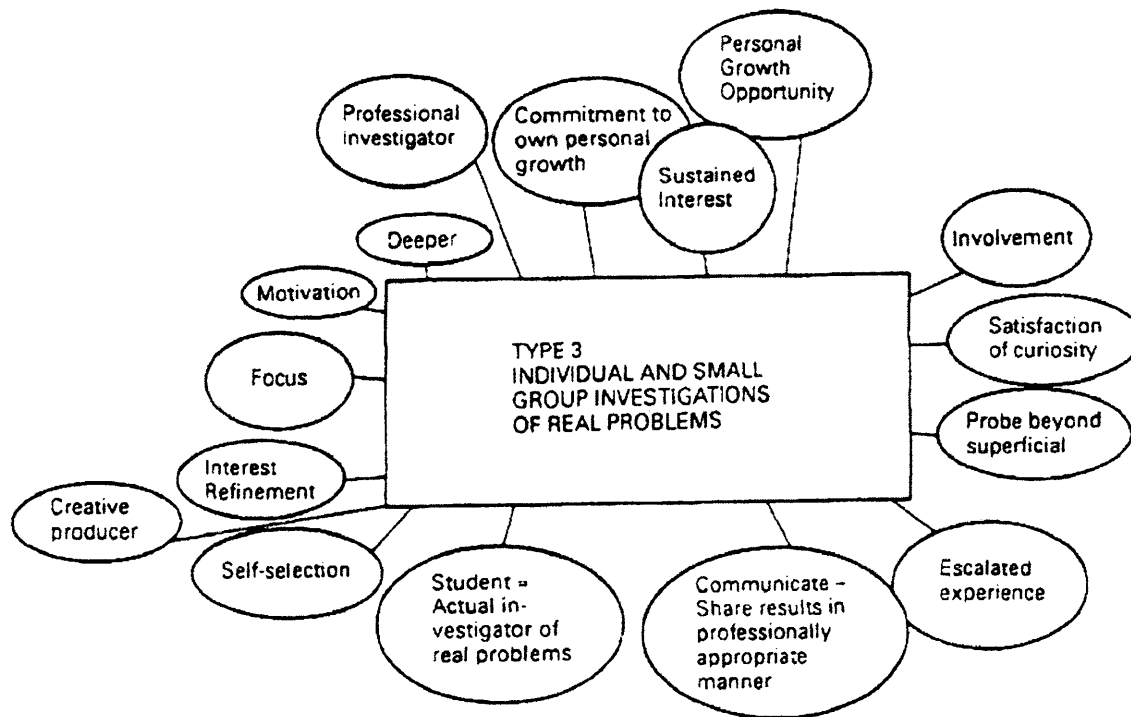
**Figure 2.17 Type 2 in Rinzulli's Model**

The third type of enrichment is individual or group activity (see Figure 2.18) which deals in investigation, problem solving and presenting a project or a report. At this stage, emphasis is placed on creating new knowledge. Students are treated as independent investigators in the field of content they have chosen. The students formulate problems, gather and analyse data, achieve results and draw conclusions, which they then summarise and present to their instructor. Learning may also take place in a small group which may choose a specific project in which each participant takes on part of the assignment. Then, at the end of the process, the project is presented in its entirety, accompanied by a detailed summarising report.

This process is accompanied by the teacher and creates an element of mutuality involving a personal relationship between the teacher and student. Success in such an activity is related to the motivation and perseverance of the student. Learning and investigation become significant to the student, particularly because the student chooses the research topics according to his personal interests. Exposure to enrichment is also



related to Tannenbaum's approach, which determines that the potential for giftedness will be expressed if environmental and random factors allow this within an appropriate framework and at the right time.



**Figure 2.18 Type 3 in Renzulli's Model**

The Williams' (1982) model for developing thinking and feeling processes was intended for all students but it is used in gifted programmes for three reasons:

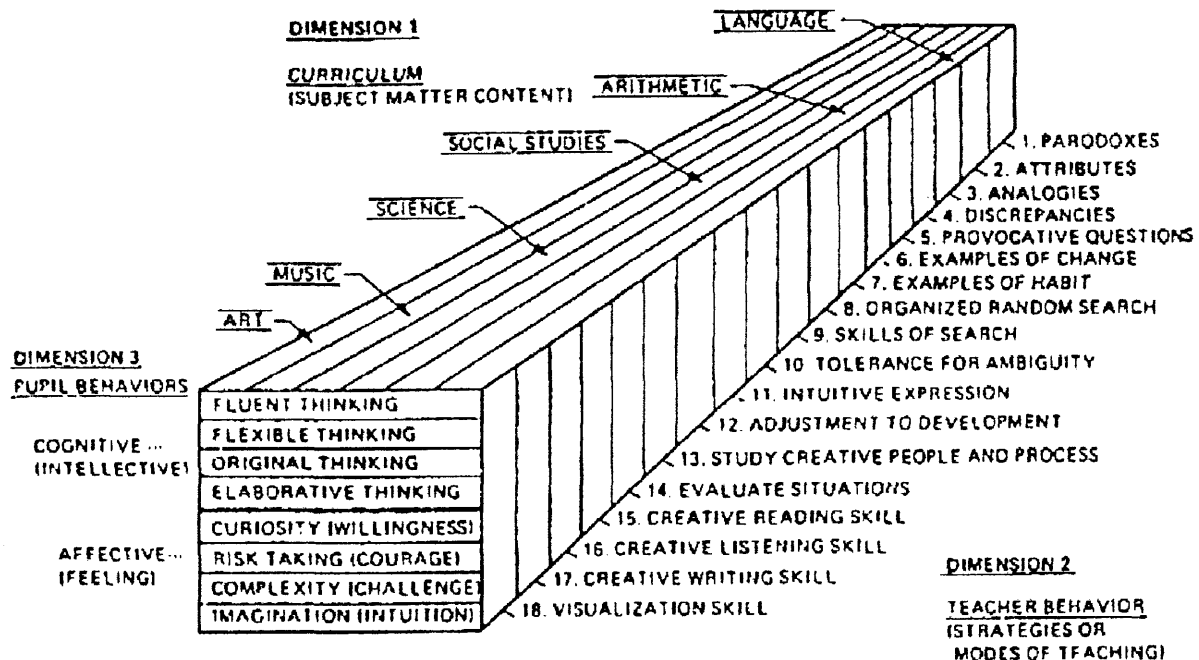
- a) Its content methods and goals;
- b) It includes teaching strategies;
- c) It is easy to implement because of its many learning activities and projects

(See Figure 2.19).

## The Williams Model.

### A Model for Implementing Cognitive-Affective Behaviors in the Classroom

$$D1 \rightleftharpoons D2 \rightarrow D3$$



**Figure 2.19 Williams' Model (1982)**

The model is summarized in a cube based on three dimensions: content, teacher behaviour and pupil behaviour. The "D Formula" in the figure explains that D1, the curriculum, interacts with teaching strategies, D2, to produce D3, the student behaviour. The Williams Model may be combined with Renzulli's triad model because Renzulli's model provides direction while Williams' model gives results. As Williams said, "One is a guide for what should be done, the other a multi-strategy approach for how to get it done" (Davis and Rimm 1985, p. 176).

The three models provide a framework for schools exploring the needs of gifted children and provide the basis for an enrichment programme.

In summary, "curriculum models clarify, explain, and supply a theoretical point of view and make specific recommendations regarding programming and other gifted education components", (Davis and Rimm, 1985, p 178).

The process of educational planning is complex because we must consider a "wide range of abilities and specific talents" (Rogers 2002, p. xviii). Gifted and talented children come from all socio-economic levels, both sexes, all races and ethnic groups, and it is important to discern the different characteristics, behaviours and traits of giftedness. These abilities can be intellectual, academic, creative, social and artistic areas as appear in Marland's (1972) definition. After the identification of the "profile type" it is necessary to collect information about potential and performance, as Gagne (1985) suggests in his model, through tests and observations. This process allows us to identify the areas which should be developed through effective educational programmes in order to meet the needs of the gifted students. It also sets the foundation and the rationale of the plans to be implemented.

#### **2.6.6 Rationale, objectives and aims**

When writing a statement of objectives, the educational philosophy and educational epistemology is the first step in planning a curriculum. In the first stage of any curriculum it is necessary to create a framework of ideas - the rationale- and to define the general goals and the reasons for its creation while discussing the importance of enriching the gifted/able as an important part of their intellectual development in fulfilling their potential and coordinating topics to their skills and needs (Davis and Rimm, 1985; Silberstein *et al*, 1987; Freeman, 1991; Montgomery, 1996; Porter, 1999). This is the stage in which the decision-makers are given guidelines including objectives and long-term aims (Tempest, 1974; Porter, 1999). In the second stage the curriculum cites the specific objectives of the centres which are: a. cultivation of the cognitive field (Gallagher, 1964; Hildreth, 1966; Shpitz, 1981; Davis and Rimm, 1985); b. developing personality (Gallagher, 1968); c. developing social awareness (Gallagher, 1968; Ahrenstem, 1975) d. education towards involvement (Hildreth, 1966; Della –Dora and House, 1974; Barbe and Renzulli, 1975; Porter, 1999).

The CSK organizers defined the goals of the project and placed cultivation of the gifted/able student in the centre in the early documents (this is detailed in the Introduction – see page 19).

Educational planning for all students, including gifted, is a long-term activity in which we try to find the best way to meet and provide a response their needs.

### **2.6.7 Planning, development and operation**

Schauer (1979 quoted in Davis and Rimm, 1985) “drew an instructive analogy between building a house and building a programme for gifted and talented students” (p. 44). According to Della-Dora and House (1974), planning the curriculum for the gifted must encompass everyone related to the issue. Everyone must be committed to the success of the project. The enrichment programme requires different planning. Planning of the learning process should take into account levels of abstraction and complexity (Vernon *et al*, 1977; Martinson, 1968; Toktelli, 1994) and the ability of the gifted to deal with problems created via creative solutions.

The planners and operators of the programme must be open and creative. They must consider the thoughts, emotions and behavioural responses that are part of the human being, but they need the special enrichment programmes for the able and gifted students to “form something different from what is normally provided” (Freeman, 1991, p. 211) and to understand that to be gifted is more than having the potential for achievement.

The planning stages include:

1. Topics, concepts and ideas around which the curriculum will focus, defining the target population, the learning process including activities and experiences suited to the abilities and the rate of the students (Davis and Rimm, 1985; Porter, 1999). Interdisciplinary topics based on varied areas of interest relate to all curricula, but topics need to be modified according to the level of the gifted/able in the class who develop a variety of significant areas of interest, and who must be guided in investigating them without the means of more traditional tasks (Gardner, 1983; Leyden, 1985; Porter, 1999).
2. Developing study materials suited to the topic and to the needs of the gifted, “less explanations and drill... than most of the class” (Vernon *et al*, 1977 p. 179). Taking advantage of his natural curiosity and developing skills to solve problems out of experience “without regard to age norm” (Lloyd, 1997 quoted in Porter, 1999, p. 179), but relating “to the maturity of the gifted child” (Martinson, 1968 p. 5).
3. Operating curricula, including the process that relates to learning and teaching. A variety of topics are located from which the gifted student is required to choose. Experiences and tasks are offered which the student applies according to his level

of ability and the level of difficulty and complexity of the topic and at the end of the process, the final product is issued (Tomlinson, 1996). Computer studies were seen as the media appropriate to the content, process and product (Berger and McLntyre, 1998). The educational atmosphere is supported by organizational and administrative means such as buildings, equipment and teaching aids that enrich the environment of the gifted students. This includes employing experienced and trained teachers.

After the stages of planning, application and performance, the next stage is evaluation and finally discussion and conclusions leading to improvement and change (Vernon *et al*, 1977; Davis and Rimm, 1985; Tomlinson, 1996; Porter, 1999).

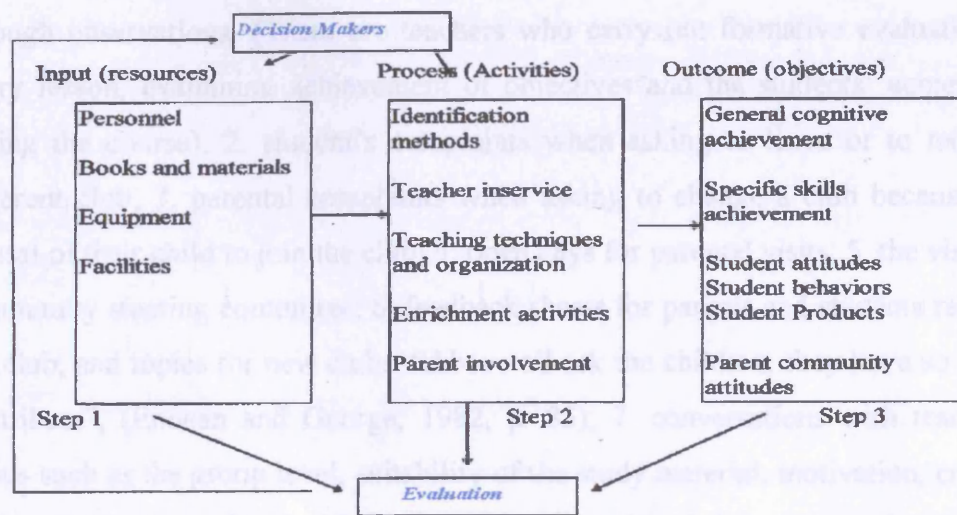
#### **2.6.8 Evaluating enrichment programmes**

Traditionally the systematic evaluation of gifted programmes has been minimal. Although gifted programmes are more difficult to evaluate than other programmes, because of the fact that it has an impact on the continued survival of the programme, additional budgeting and improvements in the programme (Davis and Rimm, 1985, p. 385).

According to Renzulli and Callahan (1978), the major purposes of educational evaluation are, “to provide feedback on whether the goals and objectives are being met and the reason for success or failure in meeting them” (p. 1). Evaluating curricula for the gifted students includes:

1. understanding the needs of the gifted;
2. aims and objectives;
3. enrichment topics;
4. processes - educational experiences;
5. sources of input;
6. achievements/output

(Rimm, 1977 quoted in Davis and Rimm, 1985; Montgomery, 1996), see figure 2.20.



**Figure 2.20 Framework for the Evaluation of a Gifted Programme (Davis and Rimm, 1985)**

Evaluation must measure achievements and success in order to transmit the data to the stakeholders. It has to be diagnostic and the information must be valid, reliable, timely and credible in order to provide it to the decision-makers (Stufflebeam *et al*, 1971). When evaluating an enrichment programme there is a basic difficulty stemming from the fact that there is no agreed criterion regarding aims (Reis and Renzulli, 1989 quoted in Nevo, 1997), or examination of the final objective. Is this for the enjoyment of the gifted? For their educational achievements? Or for the social contribution to society? In order to answer these questions the stakeholders “have a part to play”, they have to formulate goals, plan, write, operate and evaluate the enrichment programmes, “and the ideal solution is a partnership between the various parties” (Webster, 1999, p. 45). The evaluation should be accompanied by awareness of the problems that exist in achieving the aims on a high level, a lack of coordination of location and identification of the gifted students, and practical requirements, organizational, administrative, staff, time and money.

In the CSK centres, assessment takes place over the course of the year but is mainly at the end of the programme – summative evaluation - completing an evaluation form relating to achievement of objectives. The manager of the centre has a number of opportunities for evaluation: 1. visiting lessons over the course of the year in order to watch the teacher, to test the topics, the teaching methods and the work of the students

through observations. (There are teachers who carry out formative evaluation after every lesson, examining achievement of objectives and the students' achievements during the course); 2. student's complaints when asking to leave or to move to a different club; 3. parental complaints when asking to change a club because of the refusal of their child to join the club; 4. open days for parental visits; 5. the visit of the community steering committee; 6. feedback sheets for parents and students relating to the club, and topics for new clubs. "Above all ask the children, they have so much to contribute", (Endean and George, 1982, p. 85); 7. conversations with teachers on topics such as the group level, suitability of the study material, motivation, creativity, achievements or products. All of these can be achieved through questionnaires and interviews (Rimm, 1977 quoted in Davis and Rimm, 1985; Martinson, 1968).

The conclusions from all of the foci of evaluation lead the centre manager to a number of decisions: 1. continued existence of the club; 2. continued employment of the teachers; 3. the desires of the students in continued studies on the same topic; 4. new topics that have to be included for choice the following year.

The centre manager gives all of the data to the local managers of education and educational welfare and together they discuss the topics and decide about continued operation of the project in its original format or in a new and improved format. A final summary of the evaluation of the programmes over the course of the year is presented to the supervisor.

The complexity of evaluation is related to the hierarchy of those who accept responsibility and make decisions: 1) students and parents; 2) teachers and instructors; 3) centre managers; 4) educational department; 5) the government. The higher one progresses on the hierarchy, the more demand for information rises.

In summary, "The value of enrichment is so obvious that little needs to be said about it" (Worchester, 1955, quoted in George, 1979, p. 100), but "There is no single best programme... select what seems to best meet the needs of the students in your particular district or school" (Davis and Rimm, 1985, p. 178). According to Davis and Rimm (1985):

Good evaluation is the only way to determine the most effective way to enhance the education of gifted learners. It also is the only way to prove to programme sponsors and decision makers that the programme has indeed accomplished its objectives (p. 404).

In all educational programmes, the teacher is the key to effective learning (Barbe and Renzulli, 1975).

### 2.6.9 The teacher and enrichment programmes

*A great teacher never strives to explain his vision - he simply invites you to stand beside him and see for yourself. (Inman, quoted in George, 1995, p. 81)*

*The image of the teacher who teaches the able and gifted students*

The question is asked, are the traits of general teachers different from those necessary for teachers who teach the able/gifted? Most of the authorities of education agree that the gifted students, because of their unusual abilities and skills, “need different kinds of teaching and different kinds of teachers” (Sanderlin, 1979, p. 118), see Figure 2.21

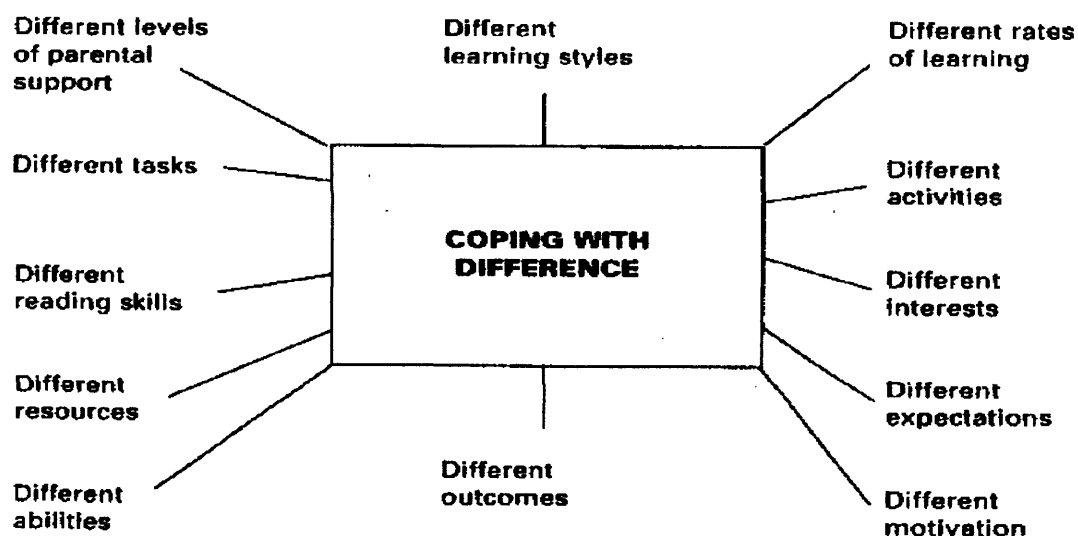


Figure 2.21 Coping with difference (George, 1995)



According to Hildreth (1966), “A gifted teacher inspires his students...you never can tell where his influence stops” (p. 521)”. Researchers such as Barbe and Renzulli (1975) agree with this opinion and determine that effective teaching of the gifted students requires a “different concept of teaching”, relating to perspectives, teaching methods and emphases of assessment. Teachers who teach regular populations are called “product-oriented”, and the gifted/able population needs a teacher called “process-oriented”, who places the student in the centre. Freeman (1995) expands this difference into three spheres: 1. “managing the curriculum”- the teacher is required to enrich the curriculum “with more stimulating and complex cognitive demands”; 2. using language appropriately - “high level of speed and quality of verbal interactions”; 3. improving task demand - to perform more complex tasks than those “offered in most mixed-ability classrooms” (p. 184).

Teachers who teach the gifted attempt to mould and cultivate their students, and there is no doubt that “the process of becoming a teacher of gifted children is indeed an exciting and rewarding adventure” (Torrance, 1965; p. 92). On the other hand, Gallagher (1968) claims teachers do not have to be gifted to teach the gifted students. Freeman (1991) reinforces this claim:

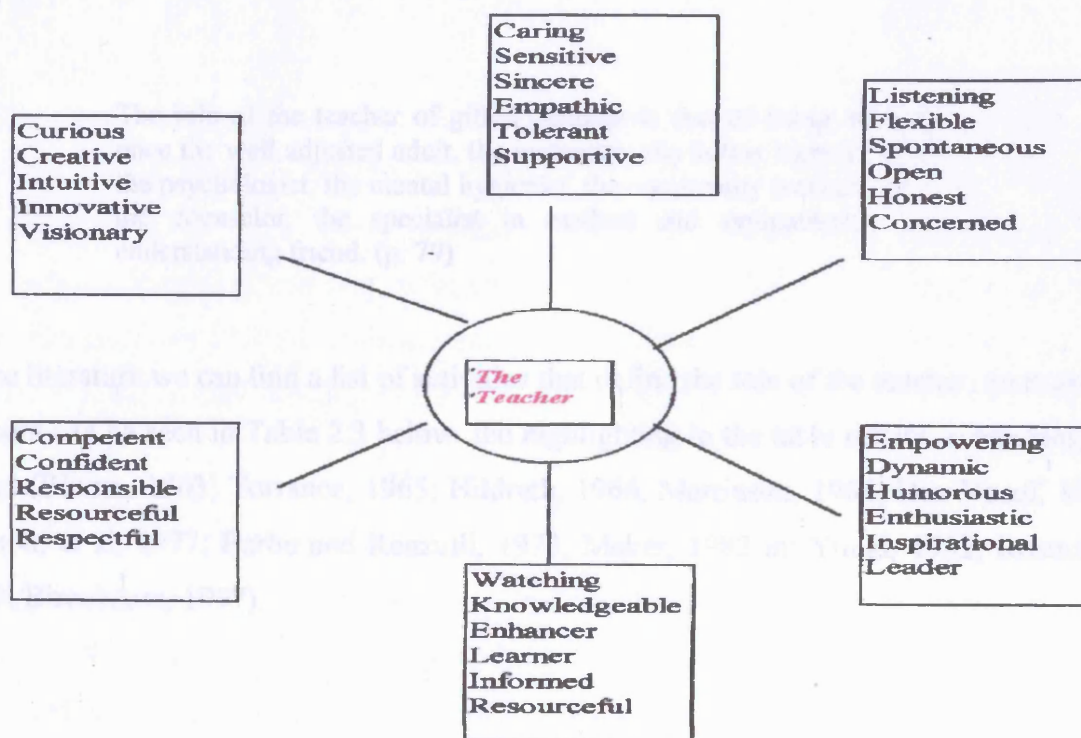
Those who teach the gifted should have a high teaching caliber...Though not necessarily specialist knowledge. The gifted did not ask for super teachers, but wanted honest, competent individuals who would do the job to the best of their abilities (p. 133).

In the research literature we can find a list of traits for teachers which provide a structure for the special personality traits and skills required to be fit to teach the gifted, (Torrance, 1962, 1965; Hildreth, 1966; Martinson, 1968; Vernon, *et al*, 1977; George, *et al*, 1979; Shpitz, 1981; Maker, 1982; Leyden, 1985; Parker and Karnes, 1987; Marjoram, 1988; Shleir and Shield, 1996) see Table 2.2.

Knowledge	Traits	Relation to the student	Relation to the Environment
High intelligence	Having a sense of	Instructs, counsels	Having
Expert in the field	humour	and directs	communication
Diverse thought	Open to ideas	Excited by learning	skills
Critical thought	Energetic and dynamic	Ability to listen	Having social
Understanding the	Dedicated and sensitive	Tolerant and	responsibility
concept "gifted"	Creative and original	empathetic	
Abstraction ability	Emotional stability	Considerate and	
Versatility of interest		supportive	

**Table 2.2 Teachers' Views of the Characteristics of the Ideal Teacher of Able Children (Lee-Corbin and Denicolo, 1998, p. 119).**

George (1995) designed these traits in another form and called it "the ideal teacher" and shown in Figure 2.22.



**Figure 2.22 The Ideal Teacher of Gifted Children (George, 1995)**

In her book "Re-Forming Gifted Education (2002, pp 10-14), Rogers summarised the characteristics of the teacher according to their order of importance:

"High degree of intellectual honesty"

"Expertise in a specific academic area"

"A genuine interest in and liking of gifted learners"

"Recognition of the importance of intellectual development"

"Strong belief in individual differences"

"High developed teaching skill and knowledge of how to teach"

"Self-directed in their own learning with a love for new, advanced knowledge"

"Level-headed and emotionally stable"

#### *The role of the teacher who teaches the gifted and able students*

"An academic and professional training teacher should be aware constantly of the crucial importance of himself/herself as a model to the child" (Martinson, 1968, p. 31). The teacher should have clear ideas of "intended outcomes and identify what the learners will be able to do at the end of the course" (Foster, 1971, p. 52). In the process of teaching the gifted students, the teacher finds that there are varieties of roles that define his task beyond the teaching of regular students. According to Scheifele, (1953):

The role of the teacher of gifted children is that of being at once the well adjusted adult, the instructor, the fellow learner, the psychologist, the mental hygienist, the community worker, the counselor, the specialist in method and sympathetic understanding friend. (p. 79)

In the literature we can find a list of activities that define the role of the teacher, an example of them can be seen in Table 2.3 below, the highlighting in the table relates to teaching the gifted (Bloom, 1963; Torrance, 1965; Hildreth, 1966; Martinson, 1968; Ben Yosef, 1972; Vernon, et al, 1977; Barbe and Renzulli, 1975; Maker, 1982 in: Yunai, 1992; Rosmarin, 1989; Birenbaum, 1997).

**Table 2.3 Activities that Define the Role of the Teacher**

Teaching	Teaching methods	Teaching and learning process	Aims	Achievement/Product
Expanding knowledge Thought skills Clarifying concepts Raising new ideas <b>Increasing use of principles</b>	<b>Analogy</b> Asking questions Individual teaching <b>Every student at his own level and rate</b> <b>Personal tasks/projects</b> Instruction and direction Explaining errors <b>Investigation and Discovery teaching</b>	<b>Emphasizing intellectual and emotional development</b> Creative process Learning from excitement Acquiring work habits <b>Finding sources of information beyond the learning materials</b> <b>Providing criteria for judgment</b>	<b>Developing independent and autonomous students</b>  Setting the student in the centre <b>Fulfilling potential</b> <b>Transfer of responsibility to the student</b> Trusting the student's abilities	<b>Problem solving</b> <b>Original product</b> Motivation <b>Creating a system of criteria for learning and assessment</b> Pride in achievement <b>Involvement in planning and developing programmes</b> <b>Learning on a level of analysis, synthesis and assessment including alternative methods – portfolio</b>

During the teaching process in the regular system, the teacher must give reinforcements. "Praise is effective - the carrot is more effective than the stick" (Freeman, 1991, p. 212). When teaching the gifted students, with their unique personality traits, reinforcement is highly important because it is related to the emotional structure of the student's personality. All of these activities are aimed at proving that the teacher "makes changes that really count" (Sanderlin, 1979, p.126).

#### *Teacher-student relations*

According to Hildreth (1966) teacher-student relations are the key to successful teaching. "The teacher is the most powerful out of home influence in a child's life" (p. 530). The young child feels affection and trust toward his/her teacher. This creates a personal system of relations between the teacher and the student "that place a deep responsibility upon the teacher through her/his attitudes toward school" (Martinson, 1968, p. 15). This system means openness in the tie between the teacher and the



student – regular and gifted. The teachers who are liked by the public of students (Leyden, 1985) “maintain at all times a caring approach to children” (p. 44). In the teaching process of gifted children, the teacher is:

...faced with pupils who read voraciously, reason and absorb information rapidly, ask questions, invent problems, provide creative solution. and cope with concepts and abstract ideas.  
(Freeman *et al*, 1995, p. 183)

He can learn with the gifted child, and be happy when the understanding of the gifted passes beyond his/her own (Worchester, 1955 quoted in George, 1979). Porter (1999) agrees with this opinion and claims that teachers must be partners in learning and intensively involved in it. This will lead to reinforcing the tie and making the learning process into an experience, “To spend high quality time with the individual” (p. 189). Leyden (1985) defines it as a surprise, “Teachers should expect to be surprised by their pupils” (p. 46).

Researchers agree with the opinion that teaching the gifted students can be difficult. Teachers may encounter students who absorb information rapidly. Students with an IQ higher than them will lead teachers to fear able students and, as a result, there is a feeling of hostility, discomfort, and doubts regarding their suitability for the job (Lee-Corbin and Deniolo, 1998; Montgomery, 1996; Freeman, 1995; Kerry 1983, Sanderlin, 1979; Torrance, 1965). Solutions for these feelings do not lead to a demand for a teacher to be “super knowledgeable”. He/she need not have more knowledge, they must be flexible, honest and do the job to the best of their abilities. It is important for them to have a positive attitude, understanding, and tools to deal with it (Freeman, 1991, 1995; Tempest, 1974), “so that respect could flow in both directions” (Freeman, 1991, p. 133). “The teachers need to tailor their skills... to the needs of the children “(Lee-Corbin and Deniolo, 1998, p. 143). One of the ways to satisfy these needs is to undergo training on the topic of teaching the gifted.

#### *Training the teacher to teach the gifted (advanced training, learning environment and teaching methods)*

In order to improve teachers' abilities to teach the gifted students, they need to acquire additional skills beyond professional knowledge. Teacher training must include

subjects regarding the gifted and their traits. They have to receive special training to teach the gifted students, especially regarding managing and developing curricula, learning materials, teaching methods and instruction. The training will include proper use of language and concepts, interaction with the gifted students and improving demands in assignments (Porter, 1999; Freeman, 1995). Effective training will be that which combines theory with practice (Vernon *et al*, 1977; Barbe and Renzulli, 1975; Hildreth, 1966).

In CSK centres teachers who research/lecture in institutes of higher education or academic fields find satisfaction and attribute high status to their positions, creating a feeling of respect for the role of the teacher. The teacher who teaches in gifted and able frameworks has to create: 1) a learning environment that will be characterized by a high level of challenge in learning; 2) an atmosphere of intellectual discipline; 3) an environment that will provide confidence and encourage the development of abilities, reinforce creativity, encourage thought and lead the gifted students to achieve (Rosmarin, 1989; Barbe and Renzulli, 1975; Hildreth, 1966).

In Israel there are no formal requirements to be able to teach the gifted students. The teachers' training institute does not have an area of specialization in this field, unlike the USA, where the curricula of the colleges and universities include a comprehensive training programme composed of a series of courses and specialities for an academic degree (Parker and Karnes, 1987; Wood and Leadbeater, 1986). In England, in the summer of 1973, the Brighton College of Education put on the first course on teaching the gifted in elementary schools and junior high schools (Bridges, 1973).

In summary, there are ten points in enrichment programmes as listed by Havinghurst, *et al* (1955 quoted in Vernon *et al*, 1977): 1) emphasis on creativity and experimental activity; 2) developing investigation and learning skills; 3) independent work with initiative and originality; 4) first hand experiments; 5) individual attention by the teacher; 6) comprehensive reading; 7) high standards of performance 8) flexibility in organization and procedures; 9) leadership and social coordination; 10) consideration of community responsibility. However, can these not be attributed to all students? The answer to this is yes, but the difference between gifted and regular students is the intellectual excitement.

#### **2.6.10 Critique of what existed in the past and present, and recommendations for the future**

In Israel, until 1988, there was almost no formal and consistent development of curricula for the gifted students. The heads of the educational departments at the local authorities tended to see the topic of developing curricula as the responsibility of the Ministry of Education. Development took place without considering the specific traits or skills of the student, in a fragmented manner, under local initiative, according to existing personnel and with no multi-year planning. The programmes lacked a clear ideological framework determined before development and operation. Science teachers tried to develop curricula individually. They emphasized academic knowledge, teaching methods and learning processes – mainly based on frontal presentation. According to Goldring *et al*, (1988) there were few options for choice; the curricula were very general, with no depth, method, or continuation.

In addition, there was a lack of a conceptual system to define goals and to decide on the aim, scope and products. Also no basic research and permanent and formal evaluation systems existed; these were required to determine the degree of suitability between aims and products and to allow conclusions to be reached regarding the quality of the curricula. Only in 1995 the Ministry of Education, published a curriculum on a number of topics - science, maths, and late humanities and social sciences. This was the situation in all of the CSK centres in the first years of establishment. Teachers recommended topics for clubs and these were examined by the centre managers according to basic measurements – that there was no overlap with the regular school topics.

In the past decade, managers have begun to receive guidance from supervisors regarding choosing clubs that will satisfy the criterion of enrichment, which means a challenge to fulfil the potential of the gifted. The writers of the curriculum started to examine "whether the quality of their education will be enhanced by learning a little about much or quite a lot about a limited number of subjects". Today distant centres must often "compromise" on topics because of difficulty in obtaining teachers, and small centres with budgetary problems that prevent them from hiring expert teachers.

In summary, development of enrichment curricula is an expensive and drawn out process requiring the creation of a centre in which experts process the materials, a centre that will operate a variety of distribution, evaluation, correction, and innovation mechanisms and include the necessary equipment and accessories. Without such a centre the future of any unique effort to promote the gifted students will degenerate.

The literature survey dealt with three fields: curriculum, the gifted child and the enrichment programmes. The central research question examined the essence of giftedness and the best way to nurture the group that has been identified and located as being gifted in the enrichment centres.

We can summarize the three sections of the literature review by three questions:

1. How are the gifted defined? 2. How do we identify them? 3. How do we meet their needs?

Table 2.4 provides a summary.

**Table 2.4 Summary of Literature Review**

View of Giftedness	Identification	How to Teach the Gifted?
Definition by two dimensions:	I.Q. tests; Recommendations of teachers using trait definitions or a checklist; Recommendations of friends and parents;	
1. Quantitative - top 2-3% of student population	I.Q. tests;	1. Different cultivation frameworks according to separate needs, such as special classes for the gifted students, groupings in school, enrichment centres and unique schools (music, ballet, sports).
2. Qualitative - expanded group having different abilities and skills (10-20% of student population)	I.Q. tests; Recommendations of teachers using trait definitions or a checklist; Recommendations of friends and parents;	2. The gifted students will learn in regular frameworks in which the principles of enrichment and expansion of the curriculum will be applied, to respond to their unique learning needs.



Many different approaches may be developed to meet the needs of children of high ability and it is possible that no one approach will be sufficient for all. When we know which are the gifted: shall we then accelerate? Or segregate? Or integrate? How the gifted are lifted? (Congdon, 1978, p. 15).

## **2.7 The recommended model of cultivation of gifted students in enrichment centres**

In the literature review, two types of models were described:

1. Descriptive quantitative and qualitative models, in which researchers related to three factors behind the development of the gifted individual – a. heredity, b. education and environment, c. personality traits.
2. Models for enrichment of gifted individuals which reflect educational systems in Israel and worldwide.

In my opinion, an overall model should be recommended for realisation of the gifted individual's potential, which combines the definition of giftedness and the concept of enrichment, to create a more comprehensive structure that will serve to many different kinds of gifted students, and respond to their preferences and personal interests.

The model is just a visual representation of some of the main features in my thesis. It will be composed of three circles, with the gifted student in the centre.

The first circle deals with three central factors, cultivation of the intellectual sphere, the creative sphere and cultivating the personality traits of the gifted child.

The second circle includes factors that directly aid the first circle – centre managers, teachers, enrichment programmes, parents and the educational environment.

The third circle includes external bodies related to the enrichment project – managers of the educational system, supervisors, elementary school principals and the community.

The model intends to show that only involvement among all of the stakeholders will contribute significantly to the cultivation of the gifted individual.

(See Figure 2.23)

# Model of Cultivation of Gifted Students in Enrichment Centres

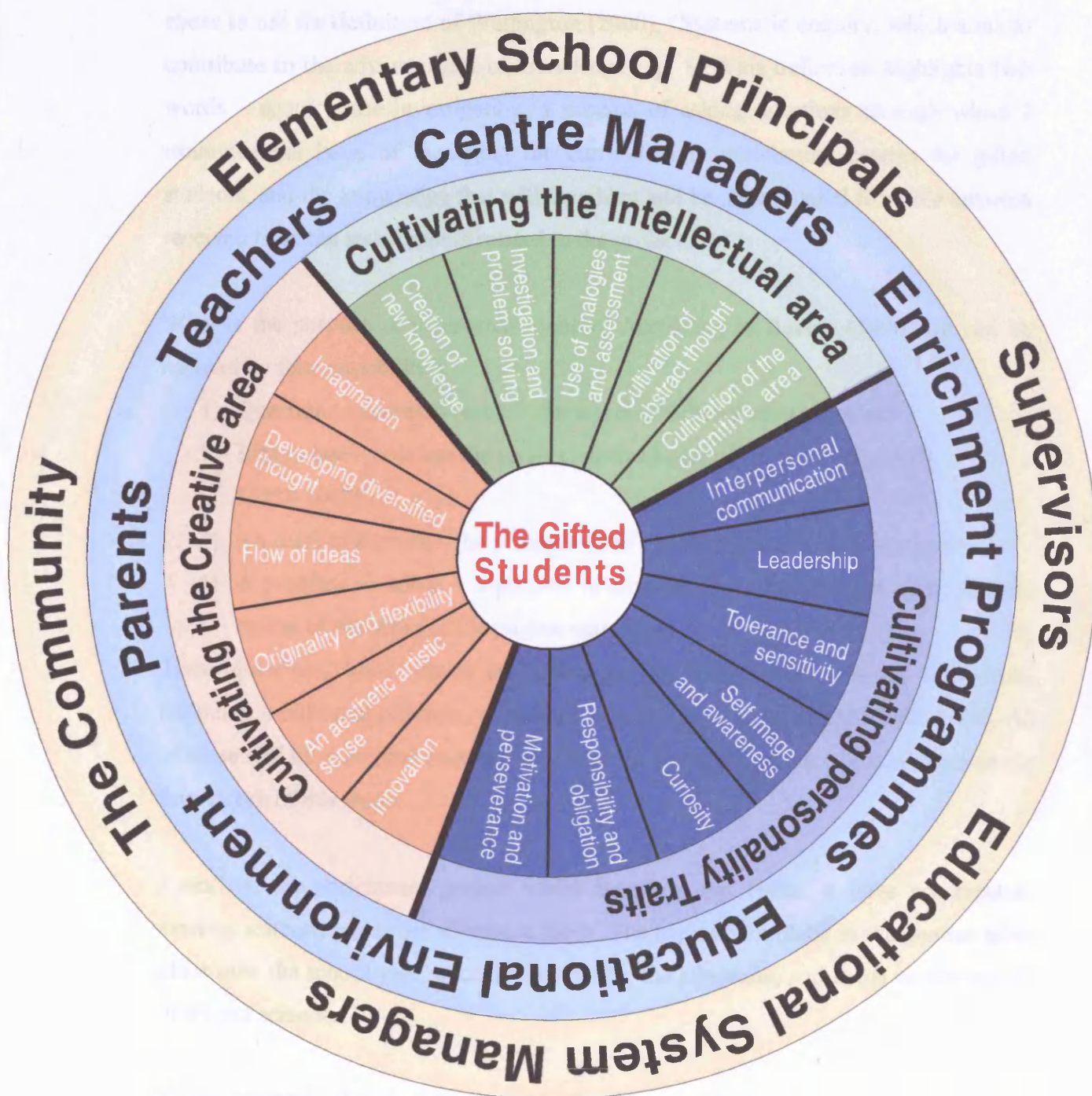


Figure 2.23 model of cultivation of gifted students in enrichment centres



## Chapter 3

### Research Methods

#### 3.1 Introduction

*“A single study is never the first step in an accumulated process of acquiring knowledge and no study is ever the final step.” (McGrath et al, 1982, p. 107)*

What is research? There are many definitions and explanations to this question but I chose to use the definition of Wellington (2000), “Systematic enquiry, which aims to contribute to the advancement of knowledge” (p. 8). This definition highlights two words – enquiry, the investigation, a process of asking questions through which I examined the issue of managing the curriculum in enrichment centres for gifted students, and the knowledge that will be added and be accumulated from the answers received from the stakeholders related to the project.

What is the purpose of a research inquiry? According to Bassey (1990) we can be assisted by four possibilities:

- 1) Question to address – what is the secret of success of the centres?
- 2) Idea to test – how has the project survived over a period of 19 years?  
(1983-2002)
- 3) An issue to explore – the perceptions of stakeholders related to the project.
- 4) A problem to solve – a process of evaluation, which did not exist over the course of the years of the project existence.

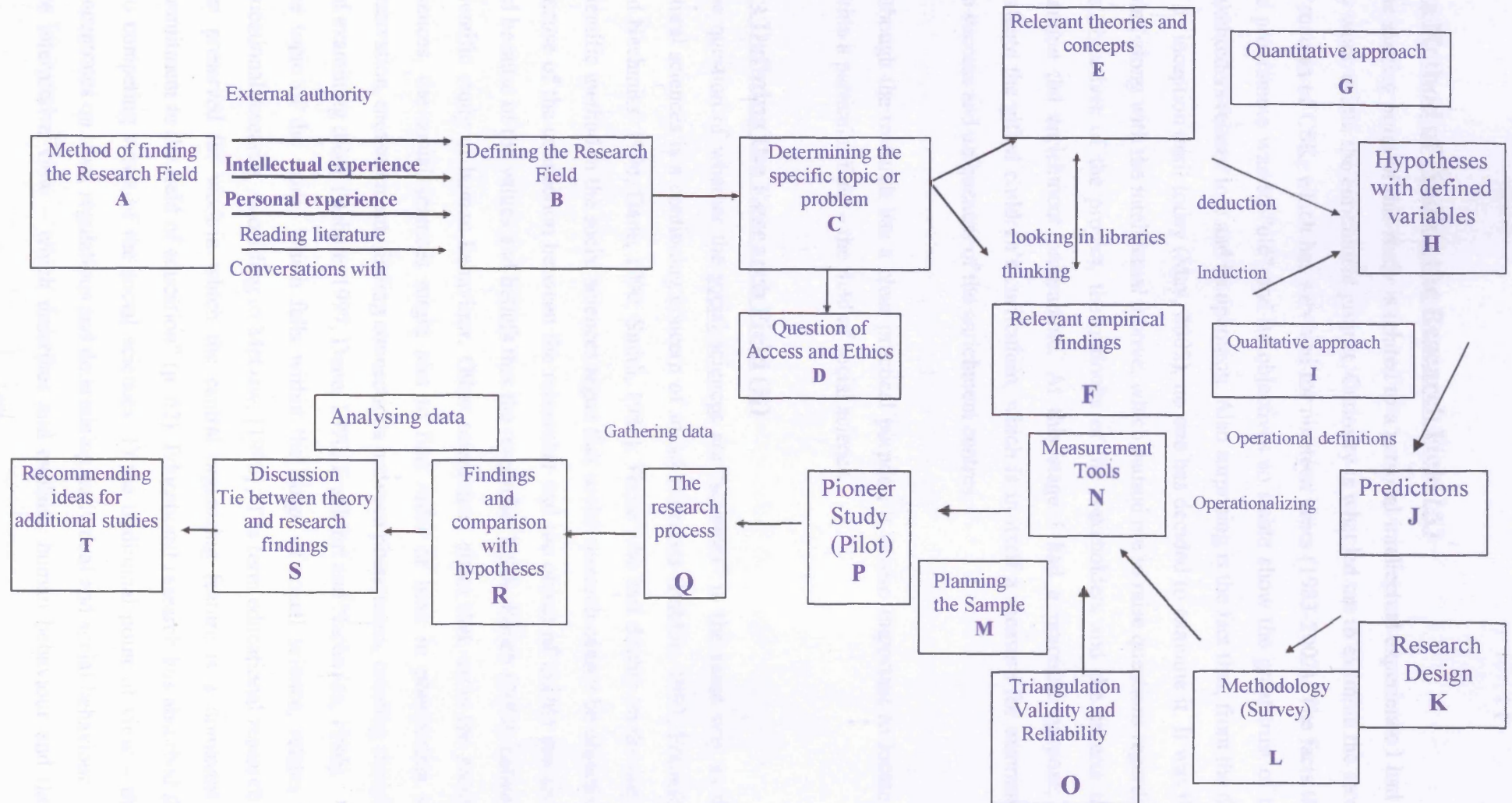
These questions, ideas, issues and problems can come from a variety of sources, including intellectual interests, curiosity and personal experience (McNeill, 1989). All of these will be examined over the course of the research, which will take place in the framework of this thesis.

I work at the enrichment project which began in the 1980s; it does not replace existing schools, but exists alongside them. The enrichment clubs in the centres take place over the school year, once a week during the afternoon, and focus on the topics of art and sciences.

To structure this chapter I drew an ‘ideal’ scheme, which helped me: to organize my thoughts, to design the research setup and to follow the process of conducting the research, starting with the formulation of the topic, aims, then planning, gathering and

analysing data and ending with discussions, conclusions and recommendations (Wellington, 2000). The scheme (Figure 3.1), describes this process through the necessary actions for performance of a study as expressed in the chapter. It is constructed by squares: Square **A** begins with the search for a research topic – enrichment programmes in the CSK Gifted centres. Square **B** relates the topic to the field of educational research. Square **C** defines the central research question – managing curricula in enrichment centres for the gifted students in the north of Israel, the perceptions of the stakeholders, and details the five research questions dealing with objectives, decision-making, evaluating curricula, satisfaction and the influence of various factors related to the project. Square **D** relates to receiving permission to perform the study from those in charge of the project. Square **E** is related to theories and literary material related to the topic such as: curricula, the gifted students, and enrichment programmes. Square **F** is not described in the present research. The research deals with a qualitative and quantitative paradigm - Squares **G,I** - but does not deal with hypotheses and predictions that are found in Squares **H** and **J**. The research setup/design - Square **K** - describes the choice of the survey as an overall research approach - in Square **L**. The research tools that wove it: questionnaires, interviews and observations in Square **N**, which must stand up to three criteria: Triangulation, Reliability and Validity, mentioned in Square **O**. Performance of the process is described in preparing the Sample - Square **M** - gathering data and performance of the Pilot - Square **P**. Description of the process of distributing questionnaires and doing interviews relates to Square **Q**. The next stage is analysis of the findings – Square **R**- discussion of them – Square **S** - and connecting them to the theory, which appeared in Square **E**. The final Square - **T** - summarizes the study with recommendations for additional studies.

**Figure 3.1 Scheme of Actions Necessary for Performance of a Study**



### **3.2 Method of Finding the Research Field (A)**

The starting point of this study is related to a personal-intellectual experience I had in my work within the enrichment project. Curiosity is what led me to examine the secret of success of CSK, which has survived for nineteen years (1983-2002). The facts that the programme was so "old" and its objectives so stable show the great trust of the stakeholders related to it and its operation. Also surprising is the fact that, from the day of its inception until today (May, 2002), no one has decided to examine it. It was this point, along with the intellectual motive, which caused me to raise questions regarding the objectives of the project, the outlooks of the stakeholders and the criteria that examine the enrichment programme. At this stage I had a practical purpose, to evaluate the gifted children's curriculum, which is in itself a measure for examining the success and uniqueness of the enrichment centres.

Although the research has a clear practical purpose, it is also important to locate it within a particular field – the field of social science.

### **3.3 Defining the Research Field (B)**

The question of whether the social sciences are "sciences" in the same way as the natural sciences is a continuing concern of social scientists (Babbie, 1997; Frankfort and Nachmias, 1996; Dane, 1990; Smith, 1981). Those who cast doubts on the use of scientific method in the social sciences argue that social research cannot be objective, because of the connection between the researcher and the object of his/her research; and because of the values and beliefs that the researcher holds. Punch (2000) called it scientific study of human behaviour. Other researchers claim that, as in the natural sciences, the social sciences might aim to find order or laws in phenomena via observation, measurement, finding connections between phenomena, creating theories and examining them. (Babbie, 1997; Dane, 1990; Frankfort and Nachmias, 1996).

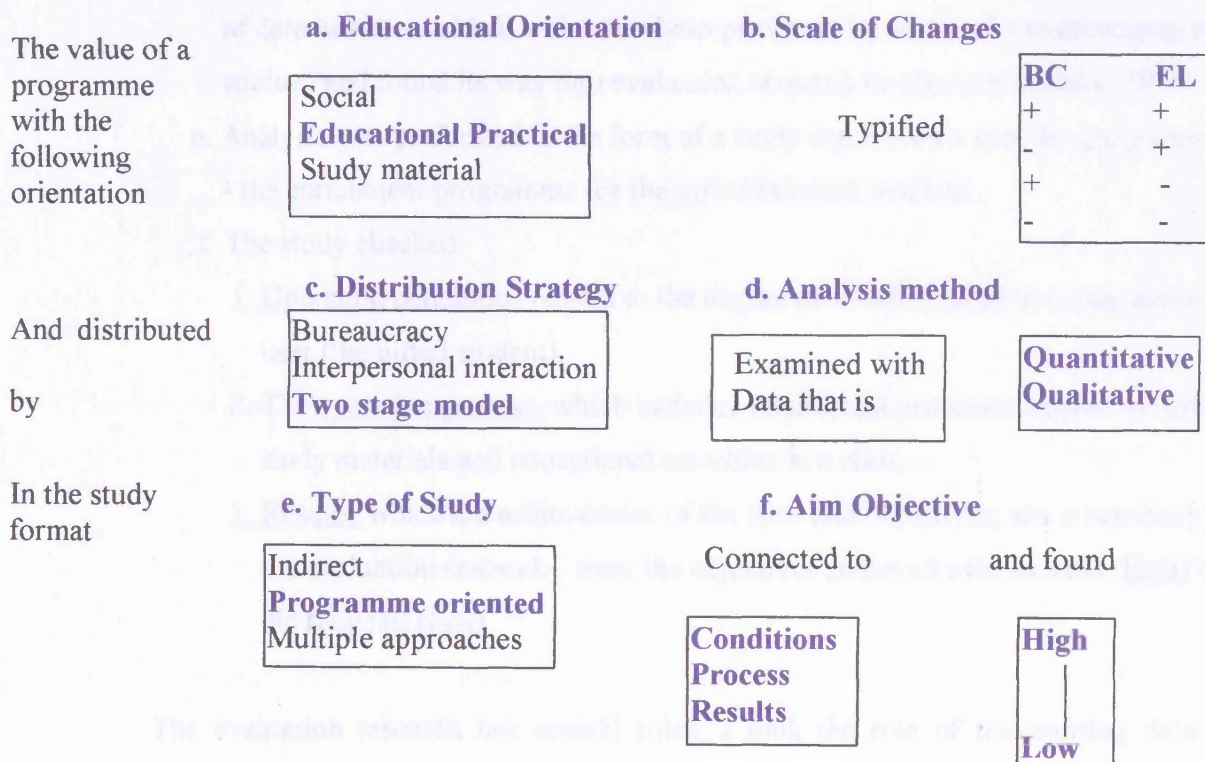
The topic of the study, which falls within the range of social science, relates to educational research. According to McGaw, (1996) "The term educational research is best preserved for work in which the central organizing feature is a dominant commitment to the field of education" (p. 62). Educational research has absorbed the two competing views of the social sciences: 1) the traditional point of view – that concentrates on laws, regulations and determining individual and social behaviour. 2) The interpretive view – which describes and explains human behaviour and their



learning organizations and emphasizes how people differ from each other (Cohen *et al*, 2000; Wellington, 2000; Punch, 2000). It includes several specialized areas; one of them is evaluative research, which means “assessment of the effectiveness of social programmes that were designed as tentative solutions to existing social problems” (Smith, 1981, p. 241). It is more like quality control that checks the operation of the programme as it was designed to work.

The present study deals with evaluation of the operation of a unique enrichment programme for gifted students. I chose Eden’s (1987) model (as shown in Figure 3.2) to represent the process of evaluating the centres. The model, which defines a process of six concepts, offers an example of an evaluation programme. I decided to use it because it relates directly to the first section in my study that deals with the curriculum and has many similar points. For example: an educational programme, examining aims and objectives, analysing data through qualitative and quantitative methods and evaluating results /achievements.

**Figure 3.2: Mapping Evaluation of Operation of a Curriculum (Eden, 1987)**



BC = behaviour changes; EL = element

- a. The value of a programme with an educational orientation relating to educational activity including: intellectual processes of learning (teaching the gifted students) through investigation (the enrichment programmes), teaching in small groups (teaching strategies in the centres) and use of technological teaching aids (exposure to innovative technology).
- b. The programme is typified by significant results, which are mostly long-term changes expressed in the achievements of talented students and short-term objectives such as satisfaction with the programme. The project is related to many participants - the stakeholders - educational welfare managers, supervisor, centre managers, teachers, students and parents.
- c. The programme is distributed as a two-stage model composed of:
  - 1) Bureaucratic distribution of the programme, which was authorized by the Ministry of Education through external companies;
  - 2) Personal interaction in developing programmes through the participating teachers
- d. The methodology of evaluation was greatly affected by the tradition of quantitative summary of data (Levy, 1990); more recently qualitative summary of data has been added, which has been proven to be successful in ethnographic studies, and found its way into evaluation research in education (Stake, 1976).
- e. Analysis was performed in the form of a study centred on a specific programme - the enrichment programme for the gifted/talented students.
- f. The study checked:
  1. Operation conditions related to the degree of satisfaction of the programme user (the gifted student).
  2. The operation process, which includes intellectual processes related to suiting study materials and educational activities to a class.
  3. Results, which are achievement of the aims and objectives, and a summary of the evaluation research - were the objectives achieved with success (high) or did they fail (low).

The evaluation research has several roles; I took the role of transmitting data to clients of the evaluation, the stakeholders. The purpose is to examine how far the objectives of the programme have been met, the management of the project, the concept of enrichment programmes, degree of satisfaction and enjoyment of the



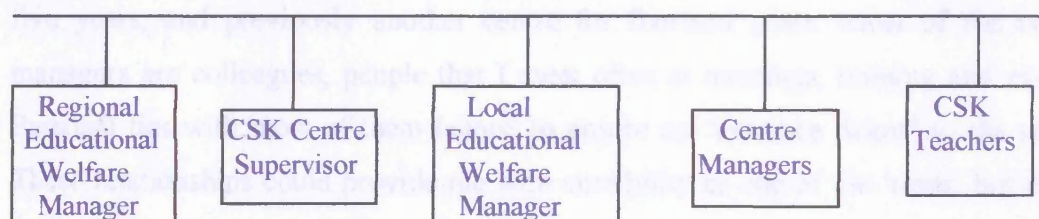
gifted students, and fulfillment of parents' expectations, in order to reach the decision-making stage (Nevo, 1986). As mentioned, an evaluation study will take place in the field of extracurricular education, which will help to develop the potential of the gifted students. This role of evaluation gave me the idea of defining the research topic.

### **3.4 Determining the Specific Topic or Problem (C)**

The study deals with managing curricula in ten gifted students's centres. The objective of the study is to examine the perceptions of the main stakeholders and to compare their views regarding the enrichment programmes in these centres. The target population of the centres, gifted students from grades 1-6 in the local areas, has been defined, located and identified using external tests and recommendations given by principals, class tutor and consultands within the elementary schools.

Five research questions will examine policies, objectives, decision-making and levels of satisfaction for evaluation.

Research Question 1: what are the objectives of the project as perceived by *the stakeholders*?



Research Question 2: How do the *Centre Managers* determine their decisions

Regarding the content of enrichment programmes? How do they define the programme to the *teacher*?

Research Question 3: What is the level of satisfaction and enjoyment of the gifted/talented *Students*?

Research Question 4: Does the project satisfy the expectations of *Students and Parents*?

Research Question 5: What is the impact of variable factors involved in managing the programme?

After defining the research topic, the researcher must gain an “entrance pass” to the centres where the study will be performed. Without this permission, the researcher may find him/herself with research questions, but no centres.

### **3.5 The Questions of Access and Ethics in Educational Research(D)**

#### *Access*

In Israel, there is a central government regulation that requires the receipt of permission for access to the academic institutions to perform a study. Upon presentation of the research proposal for this thesis, the regional supervisor was approached to obtain formal permission. Permission was given to me along with oral agreement to offer any help needed. At the same time, I met with the Northern Region manager, the one who developed the idea of the CSK programme. He also gave me his blessing and promised that he would be at my disposal regarding any problems that may arise (he also provided documents that he had saved from the beginning of the establishment of the project).

The enrichment project for gifted students includes various centres headed by managers, some veteran and some new. I have been managing one of these centres for five years, and previously another centre for fourteen years. Most of the centre managers are colleagues, people that I meet often at meetings, training and events. Personal ties with most of them helped to ensure an “entrance ticket” to the study. These relationships could provide me with credibility as one of the ‘team’ but could also affect reliability and raise ethical issues that I needed to acknowledge and be aware of.

#### *Ethics*

An important criterion in evaluating research is the ethical-moral factor. “Ethical problems are likely to occur in social science research since human subjects are involved” (Burns, 2000, p. 23). Researchers define ethics as a set of moral principles - autonomy, beneficence, justice - and rules - veracity, privacy, confidentiality, (Burton, 2000; Burgess, 2000; Cohen and Manion, 1994). The American Psychological Association formulated the principles of ethics in research and the guidelines for ethical behaviour in 1973. This has become a model for researchers in social sciences. Researchers are limited by an internal system of values and beliefs

and they must understand that in the research process they may delve into the private lives of the respondents (not in the classroom observation). They have to promote knowledge with obligation to treat others fairly (Dane, 1990). Therefore, instructions and limitations, principles and relationship to the ethical issue have been emphasized, including: 1. Clarification of willing participation. 2. Informed consent. 3. Secrecy. 4. Privacy and confidentiality. 5. Publication of findings (Burns, 2000).

In recent years, concern with ethical considerations in educational research has grown. The stress existing between two systems of values that are accepted in society - loyalty to the research community and human respect - has created a situation in which the researchers must be aware of ethical considerations involved in voluntary and non-voluntary participation. Concerning ethics, the main approach in this study is a survey and "survey respondents typically experience less inconvenience and intrusion than the subjects of other research studies about ethical issues" (Burgess, 2000, p. 13). However, at every stage of the research, the question of ethics has to be considered (Burns, 2000; Herbert, 1990; Beyth-Marom *et al*, 1986; Dockell and Hamilton, 1980). The entrance of a "stranger"- me - as a researcher to the other centres may be perceived as a sort of a "threat". I had to ensure the respect, privacy, and rights of the subjects.

The researcher has a responsibility to inform participants of all relevant information (Dane, 1990). I had to clarify to them the goals of the study, its character, expectations and its contribution to gifted education. I needed to receive their agreement to participate in the study and to ensure, throughout the process of collecting data, that the confidentiality of data given by them would be secured. Before every interview, I emphasized that they had the right to leave at any stage. The motives of the subjects/respondents in participating in the study can stem from curiosity, goodwill and commitment. I attempted to respect their privacy and their voluntary involvement. Usually, they wished to respond to the questionnaires out of an honest desire to help the evaluation process. Some of the teachers were very open, but some worried about exposure or criticism. The centre managers related to the issue as a necessity that also included curiosity to see the research results, and to check how they could apply them. The students participated with enthusiasm.

During the second year, in the forum meeting of the centre managers, I outlined the research goal and explained the process for all the CSK centres, including the measurement tools that I intend to use. Beyond the general meeting, an additional meeting took place with each manager in which the questionnaires to be given to the teachers, students and parents were presented to them. All through the process of the present study, I held conversations with managers, teachers and students regarding the research objectives, and the respondents' free will in participating.

In the third year the study actually began. The teachers who received questionnaires gave their agreement to participate in the study. Students (after receipt of the agreement of the centre managers) completed the questionnaires seriously and with great pleasure. Students may not know how to differentiate between forms that require data from them and between forms that test them. Before they began filling in their questionnaires, I gave a short lecture regarding the objective of the study and what their role was. It was important to emphasize that they were partners in evaluating the project. At this stage I encountered another phenomenon. Aside from a few select cases, the students saw filling in the questionnaire as a unique active partnership given only to them as a group, and therefore the desire to respond was exceptional.

Parents received their questionnaires via the students and were requested to return them in the mail. The issue of anonymity was clarified to them, but some insisted on filling in their names, wishing me good luck, offering help in analysing the data and asking to be informed of the results.

An additional issue was limiting the time necessary to complete the questionnaires. Here there was an ethical problem regarding the time of the actual lessons, as the parents pay towards the children's clubs. In some centres, I asked permission from the managers to enter the classes during the break; in others I requested permission from the teachers to delay the beginning of the lesson by fifteen to twenty minutes.

The managers were interviewed in a personal meeting. The teachers who were interviewed were divided into two categories, some recommended by the manager and some by my request (I did not know most of them, so there was no personal

motive behind the choice). At the same time, the managers gave their permission to perform observations in a class. Here too there was a division between the recommendations of the manager (usually the recommendation was regarding an exciting and unique club) and between my request to visit a lesson with the intent towards maintaining a balance between sciences and art.

Towards the end of the study, I prepared a summary including events, comments and data accompanying the research process. Over the course of a general meeting, I clarified the process that was about to end and presented some data analysis. I thanked the centre managers and promised that, on completion of the research, they would receive the results and be able to be aided by the conclusions since: "Research data are not private property" (Dockell and Hamilton, 1980, p. 196). As I noted/promised at the beginning of the research, it was aimed at assisting the stakeholders in the decision-making process of managing the enrichment centres.

In summary, entering the research process exposed me to questions of access and ethics that are involved in social research. I had to be aware of concepts such as: "personal relations", "explaining aims", "penetration to peoples' lives", "privacy and confidentiality", "anonymity", "informed consent" and "honesty".

Upon determination of the research topic, and after receipt of permission to enter the centres, the stage of gathering theoretical information regarding management of the curriculum began. The search began with academic literature, in university libraries (Leicester, Haifa, Tel-Aviv), information pools (internet), the Szold Institute in Jerusalem, the Department for Curricula and the Gifted Student's Units of the Ministry of Education. The data included:

- 1) Objectives, concepts, topics and theories that clarified the concept of curriculum relating to the content studied and the process of learning it (Maker, 1982 quoted in Yunai (ed.) 1992).
- 2) Concepts about the gifted child, his locating and cultivating.
- 3) Examination and classification of educational curricula in the enrichment centres according to certain principles that reflect the values of society. These values are translated into the goals of education including providing an opportunity to the gifted/able student to enjoy educational programmes suited to his abilities.
- 4) Concepts and criteria for evaluation of the project.

### **3.6 Theories and Concepts Relevant to the study (E)**

The concepts relevant to the study are related to organization of uniform educational curricula. In the literature I found two mainstream approaches and a third approach that is a connection between them.

1. According to structure of knowledge (Bruner, 1960; Schwab, 1964; Phenix, 1964; Eden, 1971; Hirst, 1974; Schubert, 1986).
2. According to integrative organization (Martin, 1970; Connelly, 1972; Ben Peretz, 1975; Cohen, 1988; Jacobs, 1989).
3. According to synthesis of the 2 concepts (Eisner, 1971; Schwab, 1983; Kliebard, 1988).

Details of these approaches can be found in the literature review.

Today, in the enrichment centres for the talented, the third approach is used. It begins with varied and flexible topics allowing the autonomous teacher to develop authentic curricula based on the needs of the gifted student. The theoretical frame of the educational curricula in the enrichment centres is defined as a multiple stage developing phenomenon (Silberstein, 1984), that goes through reincarnations, beginning from its stage of formulation according to the writers, and ending with the product stage - achievements among the students.

Examining and evaluating the curricula of the enrichment clubs in the CSK project through all these stages places responsibility on the centre managers who examine the programmes, emphasize the professionalism and expertise of the teachers, and see them as independent developers. These teachers identify gaps and changes; they are autonomous in formulating the objectives of the curriculum, developing it and operating it to achieve the desired results (Sabar, 1982). This desire, which accompanies the process to reach significant teaching, achievements and educational products, is related to the ability to examine the value of the curriculum (Eden, 1983). The results received from the evaluation process have to provide an analytical profile of the project, through foci and criteria of evaluation. All of these issues are expanded upon in the professional literature.

After establishing the focus of the study and the identification of objective and aims, comes the stage of selecting the research method.

### **3.7 Identifying the Paradigms and Considering the Quantitative and Qualitative Approaches (G,I)**

An epistemological philosophical concept “refers to a particular set of assumptions about the world and about appropriate ways of studying it” (McNeill, 1990, p. 116). There are generally two “schools of thought”: one is based on the scientific method that is interested in facts and in details that can be measured by use of statistical analyses, “to produce generalisability results” (Richardson, 1993, p. 15). This approach focuses on objective, precise and reliable data and uses quantitative methods to process it (Wellington, 2000; Frankfort and Nachmias, 1996; Dane, 1990; McNeill, 1989). This general approach, which is based on scientific knowledge, is called positivism, and the key process is deduction.

The other approach is not based on scientific method but is based on the idea that “all human life is experienced...from subjective points of view...social research should seek to elicit the meaning...from the point of view of participants” (Johnson, 1994, p. 7). In this approach, qualitative methods are used “to appreciate the different construction and meaning that people place upon their experience” (Easterby-Smith *et al*, 1994, p. 78). The interpretive approach is generally used where complex issues are involved. “The principal concern is with an understanding of the way in which the individual creates, modifies and interprets the world” (Cohen and Manion, 1994, p. 8). The key process in this approach is induction.

Guba and Lincoln (1985) recommended conceptual differentiation between the two paradigms and called them ‘rationalist’ in quantitative research and ‘naturalist’ in qualitative research. The differentiation between the two paradigms, which could be identified as qualitative versus quantitative, relates partly to the types of data that are found and the ways that they are summarized within the framework of the study (Davis, 1981).

Over dozens of years the qualitative and quantitative research paradigms have represented opposing viewpoints, and the differences between them have grown. Towards the end of the 1970s efforts were made to decrease the conflict between the two “camps” and in the professional literature it is possible to see attempts at compromise and integration of the two methods (Jick, 1978). According to McNeill



(1989) and Seashore-Louis (1982) it is not possible to relate to the two paradigms as a dichotic division, but rather as poles on a continuum on which studies are placed. Miles and Huberman (1994) also claim that most researchers do not use one of the opposing paradigms that are at two poles of the continuum but tend more toward the centre. It has become more acceptable in recent years to combine quantitative and qualitative research.

The desire to examine every phenomenon using a variety of methods requires the researcher to be familiar with the potential value of the paradigms and to be aware of their limitations. Scholars agree that both methods are needed (Hammersley, 1995; Wellington, 2000; Herbert, 1990; Bryman, 1993), "Since no one methodology can answer all questions and provide insight on all issues" (Burns, 2000, p. 11). Cohen and Manion (1994, p. 40) determine that the researchers who use quantitative research paradigms "also relate to qualitative parameters of humans with their social contexts".

Zetterberg (1965) emphasized that both the quantitative and qualitative paradigms have unique roles and both of them are vital for the promotion of different fields of research. He claims that the weakness of each paradigm is found in the advantage of the other, for example: the missing precision in qualitative research versus focusing on few aspects in the quantitative study. McGrath *et al* (1982) called it the complementary character of the two paradigms, with the claim that each one of them is lacking in some way.

According to Dane (1990), the qualitative and quantitative research paradigms both suit evaluation research. Evaluating the enrichment curricula in the present study will involve both approaches. Using them can provide a large quantity of findings that will help to answer the research questions. Stake (1976) emphasizes this advantage and claims that the researcher must provide findings that are understood by the stakeholders who take part in decision-making. I used the two approaches, but I gave preference to one major research style, the quantitative approach, particularly the survey.

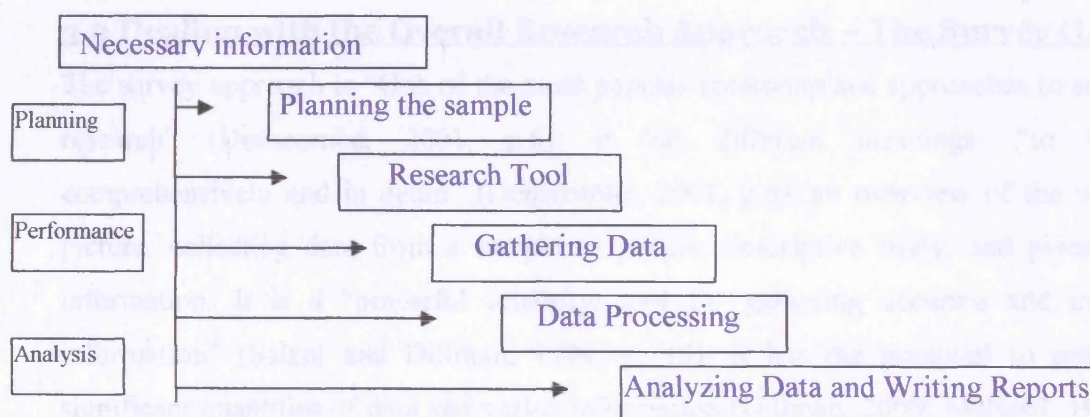
After choosing the two approaches and determining the survey methodology, I continued planning the research setup within the framework of multiple-year processes (four years).

### 3.8 The Research Setup/Design (K)

Research design means all the issues involved in planning and executing a research project.

It is the basic plan for a piece of research and includes four main ideas: strategy, conceptual framework, what will be studied, the tools and procedures to be used for collecting data and analyzing empirical materials. (Punch, 2000, p.66)

The research setup will include the following stages



**Figure 3.3 Research Setup (Hornik, 1988)**

The necessary information can be found in a comprehensive literature review of the fields being studied. This is the basic question related to the enrichment programmes: policies, goals, rationale, aims, and perceptions of stakeholders: supervisor, managers, teachers, parents and students. The sample was determined after the research population (the gifted students) was defined and the research tools were chosen. In the process of gathering data and analysing them, the research has to determine:

- 1) the order of performing the measurements via the chosen measurement tools – interview, questionnaire, observation;

- 2) the data gathering stage - samples and methods of sampling the gifted population;
- 3) the programme for processing data statistically and descriptively via data analysis;
- 4) the time table for the above;
- 5) the discussion of findings in order to draw conclusions, learn lessons and apply them in the CSK centres;
- 6) the reporting of findings to the supervisor and centre managers.

The research design will need to take into account the research methodology, which is “the activity of choosing, reflecting upon, evaluating and justifying the methods” (Dillman, 2000, p. 16).

Choice of a method to gather data by the researcher must suit his [sic] goals in performing the study and his intents regarding use of the results. (Kiman, 1977, p. 55)

### **3.9 Dealing with the Overall Research Approach – The Survey (L)**

The survey approach is “One of the most popular commonplace approaches to social research” (Denscombe, 2001, p.6). It has different meanings: “to view comprehensively and in detail” (Denscombe, 2001, p.6), an overview of the wider picture, collecting data from a sample of people, descriptive study, and pieces of information. It is a “powerful scientific tool for gathering accurate and useful information” (Salant and Dillman, 1994, p. 16). It has the potential to provide significant quantities of data and varied information (Dillman, 2000; McNeill, 1989). It “can provide answers to the questions, What? Where? When? And How? But it is not so easy to find out why?” (Wellington, 2000, p. 101).

As a methodology, I chose the survey approach as a basic and comprehensive form to examine events, relationships, beliefs and attitudes which relate to people, their perceptions, their behaviour, management methods and their decision-making, the

“Life world of human beings” (Burns, 2000, p. 11); to obtain a detailed description of data and to present it. The choice was made because of the possibility of involving many participants, of collecting a quantity of data and of receiving rapid information. It was a practical decision to distribute a large number of questionnaires among students (500) and parents (250).

According to Cohen and Manion (1994) it is a popular research style in education and "Perhaps the most commonly used descriptive method in educational research" (p. 83). The study examines the "Managing of the Curriculum in Centres for Gifted Students in the North of Israel: Perceptions of Stakeholders". The focus of the study is a specific programme/project - a common category among most evaluation research (Levy, 1990). The **CSK** project is a "local initiative" of the Ministry of Education in the Northern Region, based on a local project populated by students of the upper levels of attainment (10-15 percent) in communities that are weak socio-economically.

Generally, neither the experimental nor the non-reactive approaches are considered appropriate to research in the field of education, but one may ask why I did not use the case study method for examining the enrichment centres.

A case study is an enquiry, which uses multiple sources of evidence. It investigates contemporary phenomena within its real life context, when the boundaries between phenomenon and context are not clearly evident. (Yin, 1984, quoted in Johnson, 1994, p. 20).

The case study, which is "particularly suitable for single handed project researchers" (Johnson, 1994, p. 20), has become popular as a means of investigating practice in schools, colleges and universities. It provides a pool of data regarding existing situations and analyses them against each other. It teaches understanding of complex phenomena being studied but it lacks generalization that arises from the survey method. At first glance, because of the fact that the study deals with a certain programme, this approach could be chosen, but the research is not "studying one group in depth over a period of time" (Wellington, 2000, p. 101). If the study had been examining a specific centre, there would be a reason to use this approach; however, this study does not deal with ten case studies. I agree that it could have, but this study deals with an overall look at all of the centres.

I used four types of survey: self-administered questionnaires, postal questionnaires, face-to-face interviews and observations. The information that I received from them was: facts, opinions, values, positions, attitudes and relations. Wilson (1984, quoted in Bell *et al*, 1987) summarized the traits of the survey:

1. "Sample of respondents to reply to a number of fixed questions under comparable conditions" (p. 35). Bell (1987) adds, "In surveys, all respondents will be asked the same question, as far as possible, in the same circumstances" (p. 8).
2. By using the same question, one can compare within the sample. (Identical questions on parental involvement in the students', teachers', managers' and parents' questionnaires – see Appendices 4, 6, 7, and 8).
3. The survey can be done by interviews and questionnaires. For example: interviews with teachers, centre managers and the supervisor, accompanied by a questionnaire, or a printed questionnaire given to the gifted students or sent to their parents.
4. The respondents represent a defined population. (The gifted population, their parents and teachers.)
5. The sample of the population must be representative in order to perform generalization. (Teachers, students and parents.)

Surveys have the advantages of:

- a. Wide and inclusive coverage (Denscombe, 2001),
- b. Gathering much data with little effort in a short period (McNeill, 1989), for example: the number of questionnaires completed by the students was 468, the parents completed 193.
- c. They provide a wealth of description and may go beyond description to look for patterns in the data (Johnson, 1994; Wilson, 1984 quoted in Bell *et al*, 1984). For example: the meaning of the concept 'enrichment' among centre managers, the supervisor, welfare managers and teachers.
- d. The big size of the sample "allows great confidence about generalization based on the findings" (Denscombe, 2001, p.22); this increases the representativeness of the sample.
- e. The accuracy of the survey stems from designing the questionnaire – key issues, wording, ordering, types of question and the length (Salant and Dillman, 1994).

However, surveys also have their limitations. Hornville and Jowell (1978, p. 184) pointed out that the survey:

- a. relates "to the past and the present and is not necessarily a reliable guide to the

future”.

- b. surveys do not necessarily give the opportunity to explain a topic in depth. For example: in the parents’ questionnaire (Appendix 8), the answer related to one of three possibilities: yes, sometimes and no, without allowing the parent to give details.
- c. surveys do not have the flexibility to provide support for sensitive issues;
- d. bias may arise from a low response rate (Johnson, 1994; Wilson, 1984) versus a high response rate in the present study.
- e. the significance of producing wide data can be neglected (Denscombe, 2001).
- f. the researcher can collect data only about those things in the questionnaire if all the questions in the questionnaire are closed, “This may omit crucial points” (McNeill, 1989, p.122).
- g. Incomplete and dishonest answers from the respondents can cause problems of reliability.

There are three broad questions in planning a survey:

1. From whom to collect the information? – Define the population.
2. What methods to use for collecting data? It can be classified according to two indices: the scope of coverage - relating to the population and the sample that will be covered in gathering the data, and the depth of coverage - relating to the number of items of information that are gathered.
3. How to analyse and interpret the data (Moser, 1969).

The first step in the survey approach is defining the research population that will be included (Hornik, 1988; McNeill, 1989). In this study the research population will be composed of many individuals (Nachmias and Nachmias, 1992): 3<sup>th</sup>-6<sup>th</sup> grade students and their parents from ten CSK centres in the north of Israel, ten managers, two ‘hothouse’ managers, 25 teachers from the ten centres, two welfare managers, the supervisor and the regional manager.

After defining the population, sampling can be planned.

### **3.10 Sampling (M)**

“Sampling is the process of selecting participants for a research project” (Dane, 1990). Usually, because of time, budget or other reasons, it is difficult to gather

information on the entire population. Therefore, the researcher should be satisfied with testing a small part of it, called the sample, (Denscombe, 2001; Frankfort and Nachmias, 1996; Salant and Dillman, 1994; Babbie, 1997; Beyth-Marom *et al*, 1986) “which is intended to stand for or represent the whole” (Wellington, 2000, p. 58).

One of the goals of the survey is to allow the researcher to generalize the findings into a group larger than that which was studied (Kiman, 1977). “We can never be sure that our sample is fully representative of the whole population...Sampling always involves a compromise” (Wellington, 2000, p. 58). The nature of the sample means that defining the population must be formulated in operational terms, so that it will be clear who is included in it (Beyth –Marom *et al*, 1986). The population that was sampled was 500 gifted students, 2 or 3 groups from every centre from among grades 4-6, and an experimental sample from one centre of children in the 3<sup>rd</sup> grade (in the pilot). This group represents the entire gifted/able population in the CSK project participating in enrichment clubs (total of 1550). The size of the sample is connected to time, costs and personal limitations. Increasing the size of the sample will increase the precision of the sample results, but it will not eliminate or reduce any bias, (Denscombe, 2001; Frankfort and Nachmias, 1996; Moser, 1969). Choice of the sampling method and the method for gathering data affect one another. There are two main methods/techniques of sampling.

### *Probability Sample*

The essential feature of a probability sample is that each individual in the entire population... must have a known probability of appearing in the sample (Blalock, 1994, p. 97).

This method involves people who were selected randomly. It means that the selection is independent and not intentional. One of the types of probability sample is the stratified sample, one of its elements is that it can be expressed in purposeful choice (Denscombe, 2001; Cohen and Manion, 1994). In the study, an element of this sampling was present, and a choice made of students in grades 3-6 in the centres. This was because children in grades 1-2 may have difficulty giving responses to questions such as defining the image of the teacher, degree of understanding of the study material, implications for regular school, self image and



self confidence. The method of sampling that was chosen in this research was a non-probability sample.

### *The Non Probability Sample*

The non-probability sample refers to any procedure in which the sample does not represent the wider population (Cohen *et al*, 2000; Wellington, 2000; Nachmias and Nachmias, 1992; Dane, 1990).

In a non random sample there is no way to detail the probability that each unit has to be included in the sample and there is no insurance that each unit has any chance of being included. (Hornik, 1988, p. 37)

The advantages of non-probability sampling include: a. the fact that resources will be limited, b. it is convenient, c. the likelihood of a higher response rate, d. the researcher can sample subjects over a wide geographical area, e. a large sample is likely to increase the precision of the sample results (Moser, 1969); it might be accurate but it might not be. The disadvantages of non-probability sampling lie in the central problem, the degree of representation of the sample. It depends on subjective judgment and there is a danger that the findings will not be reliable because of the method of choosing the sample. However, because of the size of the sample in this research, which includes 50 percent of the population of the centre students, the possibility for bias and error are reduced and the findings that represented the population sampled can be generalized with some confidence. In non-probability sampling we find convenience and quota sampling.

### *Convenience sampling*

This “involves choosing the nearest individual to serve as respondents and continuing the process until the required sample size has been obtained” (Cohen *et al*, 2000, p. 102). This method was used with the students; I chose the sample from those to whom I had easy access because of the short time frame. The clubs in the centres take place once a week during the afternoon for three hours of teaching for which the parents pay. As a result the questionnaires were given out before the beginning of studies and during recess in order not to disrupt the course of studies. 500 questionnaires were given out of which 468 were completed, equaling approximately 47 percent of the entire population (1000 students in clubs in grades 3, 4, 5, 6) and 94 percent of my

sample. I think that this is an excellent response rate. Although probability sampling was not used, and convenience sampling “does not seek to generalize about the wider population” (Cohen *et al*, 2000, p. 103) the size of the sample is its advantage.

### *Quota sampling*

The most accepted method of non-probability sampling is quota sampling. The researcher decides, “how many of each category of person should be included in the sample” (McNeill, 1990, p. 38) (in my study I used a number categories such as: size of centre, age and club topic) until the quota is filled. Therefore, “human judgment enters the selection process” (Burton, 2000, p. 312) (Richardson, 1993; Herbert, 1990; Cohen *et al*, 2000). The advantages of quota sampling are that it is easy, convenient and done in order to save time and resources (Beyth-Marom *et al*, 1986) and is more straightforward to administer than random samples.

The limitations of quota sampling are that there is a considerable potential for bias, and “there is no knowledge of whether the respondents are typical of their parties” (Cohen *et al*, 2000, p. 234). This quota method requires an accurate sampling frame (Babbie, 1997). I started to stratify the age group using 40-50 students from the big centres and 20-30 from the small centres. It was also used in distributing questionnaires to the parental population. Every other child in the student sample received a questionnaire for parents. The quota was 250 questionnaires of which 193 were returned via the mail, a response rate of 77 percent. The high response implies a good representation of the parental population, but it could be that the parents who participated were those of the keenest students.

### *Sampling scales*

The goal of examination via a scale is to provide a framework for organizing information about the group of objects being studied (Peres and Yatziv, 1995). The numbers reflect the levels, the rate, or the type of trait of the objective. The systems of numbers are classified into four scales of measure: a nominal scale of measure; an ordinal scale; an interval scale; and a ratio scale such as one used in a fixed zero point and other values (Kraus *et al*, 1978). The method chosen for measuring attitudes in this study is the technique using an ordinal scale, called "the technique of summated

rating" (Nachmias and Nachmias, 1992, p. 112) or the Likert method (Likert, 1932), named after its developer (Burns, 2000).

The attitudes are to be scored...are given a number to each statements...in terms of one of some categories...from approval to disapproval...and a person's total score is the sum of these individual scores. (Moser, 1969)

This is a scale based on an analysis of items that would ensure that all of the items represent the same traits. The subjects place themselves according to their degree of agreement with the item. The stages in its creation include: formulation of sentences that represent attitudes according to a continuum, beginning with a positive attitude via a neutral attitude up to a negative attitude. Each possible answer is given a numerical value, in which the number expresses not only the identity of the values but also their order. For example, in the students' questionnaire (Appendix 7) the value of satisfaction received four numbers with the highest one relating to high value: 4 - very true and 1- not true. Sometimes, it is possible to change the order of determining positions on a scale so that the numeral 1 relates to very correct while the numeral 4 relates to incorrect. This will allow examination of the process that the subject uses in his/her considerations when marking the response.

The main advantage is that the scale is simple to prepare and has become popular. The method is based entirely on empirical data regarding subjects' responses rather than subjective opinion, "the fact that this method produces more homogeneous scales and increases the probability that the unitary attitude is being measured and therefore that validity and reliability are reasonably high" (Burns, 2000, p. 560).

The limitations are that it does not claim to be more than an ordinal scale and the total score of an individual sometimes has little clear meaning (Burns, 2000). For example, in the students' questionnaire (Appendix 7), the student was asked about new things learned in the centre. Responding positively does not allow details of what new topics are expressed. In the parents' questionnaire (Appendix 8), parents were asked if the enrichment programme encourages parental involvement. The answers of yes or no do not allow details of what areas allow involvement.

When processing data, a problem can be created when data are missing in a number of items. There are a number of solutions to this such as: removing the item from the analysis of data (this is what I chose), or giving an average grade to the missing datum (Beyth-Marom *et al*, 1986; Nachmias and Nachmias, 1992; Peres and Yatziv, 1995).

Gathering data is done via a research tool whose choice is affected by the topic of the study, in this case a research project in the field of educational management. The questionnaire (special postal questionnaires) and the interview (that gathers equivalent information which is “the essence of the survey”, Johnson, 1994, p. 51) are suitable research tools for the survey method.

### **3.11 The Research Tools Used Within the Survey Method (N)**

“Research tools are the means by which different approaches to research are operationalised” (Johnson, 1994, p. 37). The main tools chosen in this research for gathering and analysing data are questionnaires, interviews, observation, and a few documents (Denscombe, 2001; Cohen *et al*, 2000; Milat, 1995).

The two main tools to be used are questionnaires and interviews.

#### **3.11.1 The questionnaire**

The most common tool for gathering data in a survey is the questionnaire sent or given to a sample group. The researcher must ensure that the questionnaire provides him/her with all of the necessary data for analysis. Kahn and Connelly (1957) claimed that the questionnaire must serve two goals:

- 1) to translate the survey goals into specific questions via which the answers will supply the necessary data for examining the research questions, for example: What are the perceptions of the stakeholders? What are the criteria for enrichment programmes?).
- 2) to help the interviewer receive the necessary information from the respondent, for example: Is the study material suited to such a framework? Does your child share his/her experiences from the club with you?

The structured questionnaire is the most common in use in surveys because of its advantages, these are its uniformity and that it “requires relatively little time and

money and analysis of the data is relatively simple and therefore is quick and does not depend on the attitudes of the researcher and his perceptions” (Beyth-Marom *et al*, 1986, unit 5, p. 34). The structure and the design of the questionnaire affect the willingness of the individual to answer it. Therefore, every questionnaire must begin with an introduction that presents the researcher, presents the research goal and its importance, emphasizes the value of the contribution of the respondent, ensures privacy of the information and anonymity, and gives clear instructions for completing the questionnaire (Salant and Dillman, 1994, Hornik, 1988). See, for example, the parents’ questionnaire, Appendix 8.

The questionnaires were composed by me. However the items in the questionnaires were taken from existing questionnaires for the purposes of assessing projects in the Research Unit of the Department of Gifted Students in the Ministry of Education. I selected some items for the purposes of the present research. In order to test content validity, I presented them to two experts from the field of education (one was the supervisor) who read the content and suggested some changes in the questionnaires.

The questionnaires in the study were divided according to the following data:

1. Teachers' questionnaires were subject to quantitative analysis – descriptive statistics. (I chose the teachers from every centre and they were divided; one of the scientific club and the other from the artistic club – to represent the two areas which the student had to choose. Total number of 13 teachers from seven centres. Some teachers are common to 2-3 centres). In the questionnaires, the teachers were asked to provide much information about the curricula and their professional training; therefore most of the questions were closed, aside from a number of open questions which were added for clarification.

**Table 3.1: Teachers' questionnaires**

	Categories	Closed Questions	Open-ended Questions
a.	General details	8	
b.	Participation	10	
c.	Club programme	6	2
d.	Follow up	5	4
e.	Training & professional	10	
f.	Personal details		1

2. Students' questionnaires were subject to statistical analysis of quantitative data.

Choice of students from each centre was according to the size of the centre.

Total number: 468 students. The questionnaires related to research questions number three and four and were divided into two: **a.** 8 general items,

**b.** 20 closed statements in ordinal scale from 1 to 4 and 3 open-ended questions.

3. Parents' questionnaires were subject to statistical analysis of quantitative data.

Ten to twenty parents per centre. Total number: 193 parents. The questionnaires related to research question number four and consisted of two parts:

**a.** 16 closed questions and statements, in ordinal scale from 1 to 3 and one open-ended question, **b.** general and personal details.

The questionnaires included questions of information (training and professional experience of the teachers), statements of attitude and relationship (The teacher is very good) and expressions of satisfaction (I was pleased to be accepted to the programme) together with recommendations for improvement and change (should parents be involved over the course of the year?).

The basic unit in the questionnaire is the question, which is the infrastructure for gathering data and information (Hornik, 1988). The assemblage of the questions in the questionnaire should fulfill the following requirements: "relevance, lack of overlap, fulfilling potential, reliability, and validity of prediction" (Beyth-Marom *et al*, 1986, unit 5, p. 35). Creating a questionnaire involves several elements:

1. Organization – this includes: getting permission to enter the centres, time schedule, costs, publishing facilities and distribution (through the mail), collection and analysis.
2. Formulation - formulation of the questions is related to a framework of rules such as: clarity and simplicity; avoiding complex sentences and leading questions; hazy formulation and negative formulation; ensuring that there is uniform meaning to words and that the question relates to only one aspect (Wellington, 2000; Salant and Dillman, 1994; Sudnan and Bradburn, 1982; Moser, 1969). For example: “Are you familiar with the club programme?” Short and simple questions as in the parents’ questionnaire (Appendix 8). “Did the centre manager define the goals of the programme”? Avoiding complex sentences in the teachers’ questionnaire (Appendix 5). The answers in the children’s questionnaire (Appendix 7) were formulated in a way that verbally suited children aged 10-12: quite correct, correct, a bit correct, incorrect.
3. Choosing between open and closed questions - the open question can be answered by the respondent in any way he/she sees fit, For example: in the parents’ questionnaire (Appendix 8), the open question at the end of the questionnaire attempted to examine details: “In your opinion, should parents be involved over the course of the year? Cite in which topics?” However, the closed question must be answered by choosing an answer from a number of possibilities. According to Wellington (1996) the most important point is to start the questionnaire with closed questions and then the open-ended questions. I chose this method because the person who receives the questionnaire starts to answer the closed questions more willingly and quickly and then he/she moves to answer the open ones in more detail.

Use of each one of the types of questions has advantages and disadvantages. The open questions were given in all the questionnaires for the respondent to add information that perhaps had not been considered by the researcher (Herbert, 1990). This can also be a real benefit to the researcher, but it may be difficult to analyse the answers and classify them into different categories (Salant and Dillman, 1994). For example: “what did you like in the clubs?” an open question in the students’ questionnaire, Appendix 7. In the closed questions, the researcher receives relevant information. The answers are prepared, all of the subjects relate



to the same variables, analysis of the answers can be done rapidly and there is a probability that the percentage of the people who answer the closed questions will be high (Beyth-Marom *et al*, 1986; Nachmias and Nachmias, 1992). This was proved by the high response rate I received – 94 percent.

4. Order of the questions - questions can appear in a methodical order or randomly (Nachmias and Nachmias, 1992). Questionnaires usually start with simple and general questions. For example, in the parents' questionnaire (Appendix, 8): "In general I am satisfied with the clubs which my child participates in". In order to examine the consistency of the answers, a number of questions were formulated differently, but related to the same topic. For example, in the students' questionnaire (Appendix, 7): "I was happy to be accepted to the programme". "I want to continue to participate in the programme".
5. The size and the length of the questionnaire depends on the topic of the study and the scope of the research. People refuse to fill in long questionnaires and this can cause an unsatisfactory response rate.
6. Attractive visual design of the questionnaire – to gain a high response rate. It is important to make the questionnaire "user-friendly" and "easy on the eye" (Denscombe, 2001).

In the questionnaires used in this research, most of the questions are closed questions, but there are few open questions. The respondents answered the closed questions using answers that were carefully pre-selected (in an ordinal scale – very correct/not correct, much/not at all, and complete/low). In the students' questionnaire, they were given one of four (because there is a debate about the middle score on a Likert scale of 1-3 items). The disadvantage is that the answer cannot be treated as independent, because the respondent can see all the questions before answering them.

A questionnaire empowers the respondent, who may read all the questions before completing any, may complete and return the questionnaire at a time convenient to themselves, or fail to complete the questionnaire at all. (Johnson, 1994, p. 37)

The parents' questionnaire (Appendix 8) was used to examine their opinions regarding the content of enrichment in the clubs and the degree of satisfaction with the project, relating to research question four. The second part of the parents' questionnaire included general details. I needed this for information and it was important to check if some elements would produce special data which would indicate

or apply only to the gifted population. For example: country of birth, age, education and profession. Most of the parents are part of a population that does not deal with academic fields. They are distanced from the topic of educational curricula and enrichment programmes. It demanded considerable effort to design and test members of what is a multi-ethnic group with varied characteristics as shown. However, from the list I compiled, I did not find characteristic elements which refer only to parents of gifted children. Therefore, we can conclude that all the factors that were mentioned can also relate to the regular population.

**Table 3.2: The characteristics of parents' population**

The Factor	Its Significance
Culture and Customs	13 countries of origin.
Level of income	Highest ten percent, average and low.
Thoughts and life outlooks	Religious and secular - In three centres, the population is divided - 50% religious and 50% secular, in three additional centres the ratio runs from 35% religious and 65% secular to 25% religious and the balance secular.
Veterans and new immigrants *(table 4.18)	Russian and Ethiopian - More than half of the communities have absorbed a high number of immigrants. They have been faced with difficulties, mainly in a lack of work places, which has led to unemployment and increased welfare services. Because of the financial situation, parental payments to the centres have been decreased.
Areas of interest	Schools of arts, sciences and communication, open and experimental schools.
Different lifestyles and residence	Development communities/Distressed neighborhoods versus "flourishing" communities. One of the centres is regional and includes settlements of the Western Galilee. One of the centres is in a mixed community with Jews and Arabs, but there is no participation of the Arab population in the project because of language difficulties.
Parental education *(table 4.19)	Academic, high school, elementary school and uneducated.
Parental involvement	High level (visits to the centre, participation in events, counseling in choosing study topics) versus low level (those that appear at the start of the activities to register and pay and at the end of the year for the final party or the exhibition of presentations).
Parents' relation to the project	Pride, interest, encouragement, examining of the content.

### *Distribution of the Questionnaires*

Distribution of the questionnaires can be done in a number of ways:

1. The most usual method of distribution is by post, “it is the only way of ensuring that particular and selected sample of individuals receives the questionnaire. However, it cannot ensure these individuals complete and return it”, (Johnson, 1994, pp. 41-40) (Ayal and Hornik, 1986; Goydner, 1982).
2. They may also be handed out face-to-face at gatherings or meetings.

I handed out and collected students and teachers’ questionnaires, while the parents were asked to send their questionnaires back in the mail. The arrangements for return are as important as the questionnaire design (Dillman, 2000). In order to ensure return of the parents' questionnaire in the current research, a stamped addressed envelope was included, this method proved to elicit a response of 77 percent. This was also done for some of the teachers who did not have time to fill in the questionnaire on the day that it was distributed. 13 teachers answered the questionnaire, most of them handed the completed questionnaire to the centre managers.

#### **3.11.2 Interview**

Interviewing is a vital tool in social science research. The social character is expressed through the interaction between the interviewer and the interviewee (Kiman, 1977). It is “structured conversation used to complete a survey” (Denscombe, 2001; Dane, 1990). This study asks about perceptions of stakeholders and looks for the meanings people give to their experiences (Silverman, 2000). When studying forms of behaviour of the population being studied, “interviews have a particular focus and purpose. They are initiated by the interviewer with a view to gathering certain information from the person interviewed” (Johnson, 1994, p. 43), whilst according to Beyth-Marom *et al* (1986) the interview is an ongoing monologue by the interviewee, cut off by questions presented by the interviewer. Cohen and Manion (1994) saw it also as a kind of conversation but their definition includes a wide range of explanations:

Initiated by the interviewer for the specific purpose of obtaining research relevant information and focused by him on content specified by research objectives of systematic description or explanation. (p. 307).

I obtained large quantities of data from the questionnaires, but I needed more detailed and in depth information to complete it, so I decided to add the interviews. The interviews in this study are one-to-one personal interviews. I interviewed:

1. The Educational Welfare Manager of the Northern Region – since he is the one who thought of the idea of the project. A questionnaire was prepared composed totally of open questions through which I wanted to hear his story of the project, the idea behind its establishment, its rationale, objectives, tracking, locating the population, choosing managers and teachers, feedback received, and especially the secret of the project's success. The interview included 16 open-ended questions that will be analysed qualitatively.
2. The Regional Supervisor – she was asked open questions mainly regarding the objectives of the project, related to research question 1, determining policy, guidelines for the enrichment programmes, difficulties and problems, recommendations and a view to the future. The closed questions related to tracking, organization, location and identification, appointing managers, planning training sessions, and exposure to enrichment programmes. The interview included six closed questions and four open-ended ones. Data were subjected to qualitative analysis. The regional manager and the supervisor were asked several identical questions about the goals of the project, the target population and its success.
3. Centre managers - a combination of qualitative and statistical analysis was used with the interview data from ten managers. The questionnaires included ten general questions, 26 open-ended questions and four closed questions.
4. The "Hothouse" managers - a qualitative analysis was used with the interview data from two managers, using the same questionnaires as the managers.
5. Teachers of the clubs – a combination of qualitative and statistical processing – 12 teachers from eight centres (some teachers are common to more than one centre).



**Table 3.3: Structured questionnaire for teachers' interview**

	Categories	Closed Questions	Open-ended Questions	Closed and Open-ended Questions
	General	9		
a.	Club programme	1	15	4
b.	Study materials		4	1
c.	Teaching methods			4
d.	The place of the teacher		6	
e.	The place of the student		3	1
f.	Evaluation	1	5	2

Most of the questionnaire is constructed with open questions like: "What type of student does the study material cater to?" The closed questions are connected to general details and information, such as students' age, name of the club, type of topic.

6. Educational welfare managers – qualitative analysis.

**Table 3.4: Structured questionnaire for local welfare managers' interview**

	Categories	Closed Questions	Open-ended Questions	Closed and Open-ended Questions
a.	General		3	
b.	Goals		5	
c.	The role of the welfare manager	2	6	
d.	Building groups	2	11	2
e.	Consolidating the programme	1		3
f.	Bodies and ties	3		
g.	Performance of the programme		2	
h.	General details	9		

Most of the questionnaire is constructed with open questions like: “How you define your role?” The closed questions are connected to general details and information such as previous experience, education and table of connection.

The first goal of the interviewer is to receive the agreement of those being interviewed. “Access still has to be negotiated, but once the interview is agreed, a standard introduction to it will ideally be used” (Johnson, 1994, p. 45). Measor (1985) defined access not only as obtaining agreement but also as: “The process of building relationships with people you want to interview and hence getting access to their life and view of the world” (p. 57). According to Moser (1969) “the form of the interview opening is crucial” (p.187). At the start of the meeting there is a need to define the goal of the interview and a number of instructions that will create a common positive denominator to begin the meeting. In addition, enough time must be budgeted to complete the interview.

There are three main types of interview: structured, partially structured, or unstructured (Nachmias and Nachmias, 1992). “In a structured situation the interview may be little more than a face-to-face questionnaire” (Wellington, 2000, p. 74). In the structured interview, the interviewer is following a series of questions and formulations and is not able to change them as a result of comments that are received over the course of the interview. “However, structured interviews have proved a most successful method for gathering quantities of information” (Johnson, 1994, p. 51). The main limitation is the loss of data, such as comments that can come from an unstructured questionnaire (Johnson, 1994).

In this study a structured interview schedule was used based on closed and open questions. The closed questions offered the interviewees a series of answers, from which they were asked to choose the answer that was closest to their perception. The advantages of closed questions are: the fact that they take little time to answer, there is no need for written answers, analysis of them is not complex, and the interviewer may encounter fewer refusals to answer the questions. For example: the managers were asked about the sources of the project budget: the answers were – a. Ministry of Education - %, b. local authority - %, c. parents’ payments - %. The disadvantages are that they are less flexible, there are a limited number of possible answers, less open

responses, and they are controlled by the interviewer (Nachmias and Nachmias, 1992; Wellington, 1996).

The interview schedule included open-ended questions with which, according to Cohen and Manion (1994), the interviewer can ask for clarification and go into more depth. Open questions included in the interview were to examine positions, attitudes, opinions, work methods and processes, allowing the one being interviewed to answer in his/her own words. The open ended question is preferable in situations in which the “interviewees have not yet consolidated their attitudes” (Nachmias and Nachmias, 1992, p. 102). It leads the interviewee to express opinions in their own words, in a free and spontaneous manner (McNeill, 1989; Cohen and Manion, 1994). The limitation of the open question is in the difficulty in analysing the answers statistically and quantitatively.

In summary: the advantages of this type of interviewing are:

1. Over the course of the interview, difficulties and misunderstandings can be clarified.
2. The researcher has full supervision over what occurs in the interviews including the order of the questions.
3. The rate of response is usually highest in this type of interview (Wellington, 2000).
4. The rate of questions that are not answered is low. (Beyth-Marom *et al*, 1986)
5. The interviewer can encourage the respondent to go into more depth, particularly in the open-ended questions (McNeill, 1989).

In comparison with questionnaires, over the course of the interview there is room to show sympathy towards the respondent, to comment, to ask for clarification, to give positive feedback, to give verbal reinforcement, to provide a feeling of secrecy and to show encouraging body language. This encourages the respondent to answer the interview questions fully. In addition, commitment can be created in the interviewee, “that will motivate him to invest effort to provide a full and precise report” (Hornik, 1988, p. 165).



During the interviews I felt that the discussion was very fluent. It was a friendly conversation in a very relaxing atmosphere. The teachers were not confused and they answered my questions with many details. They were very honest and able to say: "I am not involved in this issue or with this topic; I cannot answer your question". No one stopped an interview early. On the other hand the disadvantage was the time needed because the interview depends on setting a time with the person being interviewed. The interview was a problem mainly regarding the period. The manager with whom I sat was freer during the activities of the centre, but the teachers were not, they sometimes arrived at the centre and entered the class then, without a break, began their second club. The interviews had to last over an hour and they usually took place at the end of the club or before the club, after a date and hour of meeting was confirmed with the teacher.

In the interview I focused on topics and subjects which I wanted to get information about. I had to plan the questions beforehand; therefore I did not use an unstructured interview mode. In an unstructured interview there can be biases such as: the order of presenting the questions, topics and ideas that may be left out, comments that may bias the conversation, the interviewer may expose personal attitudes or opinions that may affect the answers given by the interviewee - the response effect. "If you feel strongly about the issues you are researching there is a danger that you may 'guide' the interviews by seeking answers that support your preconceived idea" (Richardson, 1993, p. 80). Additional limitations are related to "first impression, data overload, missing information, confidence in judgment, inconsistency..." (Robson, 1993, pp. 274-275). These problems relate to the validity of interview data and issues of validity and triangulation are dealt with fully later in this chapter.

However, a problem of validity can also arise from possible bias, which can stem from the role of the insider researcher (Beyth Marom *et al*, 1986). I found myself in the difficult position of interviewing colleagues (e.g. centre managers and teachers) about their work. This can be an uncomfortable situation for both parties. The best way to avoid bias is to be aware of the problem. I decided to take advantage of my personal involvement in the project and to form a dialogue with my colleagues using my experiences and knowledge about the management process in the centre. Regarding the interview with centre managers, it was clear that there may be a

situation created in which I might become the interviewee, out of “partnership in the project”. In order to prevent this, the questionnaire was constructed for the interview in such a way that information questions would be first, followed by questions on content, definitions and opinions. For example: questions 1-11 were on information, 12-24 were questions on objective, 25-31 were questions on information, 32-33 were questions about perceptions, 34-36 were closed questions, 36-40 were questions for summary: evaluation, personal opinion of the project and recommendations. In this way, I managed to interview the managers with a minimum of personal comments, where the information questions divided the interview into chapters.

In summary: separate questionnaires were constructed for each type of stakeholder. Everyone was asked to answer questions regarding the objectives of the project according to their own perceptions but, in addition, for each type of stakeholder questions were formulated on topics relevant to their roles, to their outlook and their connection with the project. The supervisor, the welfare managers and centre managers were asked a large number of organizational questions regarding the method of managing the project. The centre managers were asked to explain the criteria they use when they choose the enrichment programme. The teachers were asked many questions about the curricula, suiting them to the level of the gifted students, teaching methods and the position of the student in the class. The students were asked about the content of the clubs, the teacher's performance and their enjoyment of the project. Parents were asked to relate to the project's ability to meet their expectations.

### **3.11.3 Observation**

The research setup included two main measurement tools: the questionnaire and the interview. While preparing the questionnaire a situation was created in which certain questions referred to the teachers - such as considerations, principles, processes, didactic mechanism, and attitudes, and to the students - abstract concepts such as pleasant, interesting, fun, and general concepts such as difficult, and complex. It was clear that I would receive verbal answers, but I could not examine these concepts if they exist actually or are only perceived by the teachers/students in their minds. Therefore, I searched for another method of examining the data at the time and place

of their occurrence, and of evaluating phenomenon such as original thinking, intellectual curiosity and motivation of the students and their treatment of the teacher.

Observation is an everyday activity but it becomes a research tool to the extent that it:

1. Serves a formulated research purpose. Through observation, I watched the teacher who related to the curriculum and the gifted students to suitability of the level of topics, teaching methods and products. I looked at the talented student, his participation during the lesson while examining the mutual relations between the two.
2. The check list for the observation is planned systematically.

In direct observation, the researchers' measurement tools are their eyes and ears that examine human behaviour at the time of its occurrence (Nachmias and Nachmias, 1992). The researcher has access to the events as they occur. He/She chooses data, events, behaviour and categories that are relevant to the study that will be observed over the course of the lessons and records what he/she sees clearly and precisely in order to evaluate the learning-teaching process and to interpret it (Johnson, 1994, Peres and Yatziv, 1995). The observation must take place while relating to three questions: 1) what to observe; 2) where and when; 3) how much to conclude during the recording (Nachmias and Nachmias, 1992). The identity of the researcher is known but he/she does not take an active part, preferring to sit and observe from the side to examine the phenomenon and the processes that are being studied (non-participant).

In the present study, fourteen observations were performed (Appendix 9) which related to teacher, students, mutual relations, and the physical conditions under which the activity takes place. (The conditions in schools, in classrooms, laboratories and computer rooms, as they provided accessories and equipment that are necessary.) Two broad forms of observation have been developed for research: systematic observation with a structured schedule, and unstructured participant observation.

#### *Systematic Structured Observation*

I decided to use direct structured observation. Structured observation means gathering data according to a predefined system of categories, based on an operative definition

of the data that the research question is attempting to examine (Nachmias and Nachmias, 1992). Structured observation is intended to obtain specific information; it sets out to observe “the presence, absence, intensity of certain clearly specified types of behaviour” (Johnson, 1994, p. 53). The observation included a list of closed questions which were arranged in an ordinal fashion (high, intermediate and low) ensuring rapid marking and continued observation. It was composed of statements, such as: “The teacher has control of the topic”. However, I also chose to use questions which I examined over the course of the entire lesson, such as: “Does the material interest the students?” Therefore, I recorded notes in the margins during the observation. These additional comments were intended to help me in the evaluation of traits that cannot be measured using exact tools. They were analysed using qualitative analysis to complete the picture of the class. In the study, two forms of analysis of observation were used, derived from Flanders (1975) and that of Fischler and Zimmer (1967).

The structured schedule prevents personal involvement and loss of an objective research perspective, but there was some subjectivity because the explanation stems from the world outlook of the observer (Moser, 1969). I have no doubt that two observers of the same lesson would perceive different data and interpret attitudes or events in different ways, which proves that analysis of the data includes a subjective dimension, related to the personal experience of the observer.

### *Unstructured observation*

In the present study I did not use unstructured observation. It is appropriate when there is no idea of how the teaching-learning process will take place (it can be used in case studies). Open observation allows gathering data and watching what occurs as it happens. However, interpretations of the observation can be given in different ways and sometimes the observer can focus on phenomena that are not relevant to the research questions.

In summary: in this research “The observer does not participate”, but tries to be aware of everything going on around him, by watching over the events passively. This is a situation that allows a balance to be maintained between the inside and the outside,

between “participation” in the process and between “qualitative observations” (Smolicz and Secombe, 1990).

#### **3.11.4 Use of documents**

“Documentary research relies on the use of available printed data as a source of evidence” (Johnson, 1994, p. 25). The choice of adding document analysis stemmed from the ability to increase the knowledge, to enable me to inquire into the past, usually without incurring high expenses. We can list as documents a wide range of general documents such as: letters, curricula, examination results, reports, administrative records, protocols and national policy statements. Some of them, mainly journals and diaries, have been defined as: “general term for an impression left by a human being on a physical object” (Travers, 1964, quoted in Bell, 1987, p. 53). I had to examine which documents were relevant to the study and ascertain how they could be obtained. Use of documents as a source of testimony cannot be “taken for granted” (Scott, 1990). He determined four criteria for assessing the quality of documentary evidence:

- 1) Authenticity – the documents must be original and authentic, written in the handwriting of the individual who thought of the idea behind the project.
- 2) Credibility – the documents must be recorded in their entirety.
- 3) Representativeness – the documents which were saved in their full format represent the data to the research question, such as: details of objectives, presenting the rationale of the project, criteria for locating the gifted students, guidelines for enrichment programmes and the characteristics of teachers who will be teaching in the centres.
- 4) Meaning – these documents add comprehensive and significant testimony regarding the establishment, management, organization and operation of the enrichment project.

In this study the existing documents are few but they are authentic and original and they clarify the way that the CSK project turned from an idea into reality. Three original memos, from the year 1982, were given to me by the Regional Manager; two are in his handwriting and one typed (Appendix 11, 12, 13). He kept these among his personal documents as mementos as all of the documents (including the documents regarding the founding of the project) of the time were destroyed. Every year original

documents are transferred to the Ministry of Education Archives, then after seven years they are destroyed. Copies of the documents found in the centres are sent to the archives of the educational departments in the communities. The documents include: memos, circulars (Appendix 14) protocols, evaluation sheets and annual balance sheets. In a comparison between the documents which included decisions about the establishment of the centres and the documents from the supervisor sent to the centres, I had to decide if the stated policies of the Ministry of Education were realized in the CSK centres according to the instructions published in documents. In my study, I used documents (Appendices, 10, 15) only as an addition and as reinforcement for more important methods of gathering data - questionnaires, interview and observations. "The study of documents might be done in conjunction with other methods of research (survey) involving primary sources" (Wellington, 2000, p. 110).

In summary, use of a number of methods would involve a combination of data that are obtained from a number of sources and are processed via different methods to address the research questions.

**Table 3.5: The advantages and disadvantages of the four tools for gathering data**

Approach	Tool	Advantages	Expected Problems
Survey	Questionnaire	<p>A relatively large number of people can be examined</p> <p>The data can be summarized relatively easily</p> <p>A large amount of data can be obtained from each respondent</p> <p>Relatively low cost for the amount of information and number of respondents</p>	<p>Defined questions limit the respondent</p> <p>Important information can be missed *</p> <p>The respondents may not treat the questions seriously</p> <p>It may be thought that the information expresses everything that can be learned about the topic</p>

	<b>Interview</b>	<p>The conversation can be adjusted to a natural chain of events mentioned in it</p> <p>Comprehensive information about outlooks, perceptions, opinions and values of people regarding the topic at hand can be obtained.</p> <p>A good tie can be obtained with the interviewee and his/her participation in continued work can be ensured</p>	<p>The interviewer can affect the topics raised by the interviewee</p> <p>The interviewer may bias the interviewee in a certain direction</p> <p>It is difficult to summarize the content of the interview to present it in a report.</p> <p>The interviewer may distort the interviews by personal choice of topics.</p>
	<b>Observation</b>	<p>The performance can be seen/watched instead of basing a view on personal report of the performers themselves</p> <p>Provides vital information regarding events and people</p> <p>True impressions regarding behaviour and actions</p>	<p>Choice of the sample can distort the picture *</p> <p>Choice of specific topics does not allow observation of a large number of other events</p> <p>Problems in interpreting meanings of the observed behaviour.</p> <p>A relatively small number of people and situations can be observed</p>
	<b>Use of Documents</b>	<p>Most of the material is reliable</p> <p>Provides important factors that are difficult to evaluate without this examination</p> <p>The data have a "factual" character that do not depend on people's perceptions (apart from diaries or minutes which include personal insight)</p>	<p>Much time is needed</p> <p>Problems of accessibility recording and summary</p> <p>May lead to anxiety among people who are afraid of being "exposed" *</p>

\*(true of all methods)



After choosing the measurement tools, the concepts of Triangulation, Validity and Reliability are considered in relation to educational research – curriculum evaluation in the centres.

### **3.12 Triangulation, Reliability and Validity (O)**

Triangulation, reliability and validity are all important and complex terms. Bush (2002) claims that "These concepts were originally developed for use in positive or quantitative research" (p.59) and they were not constructed for interpretive or qualitative approaches, but Hammersley (1987) points to the increasing use of these concepts in qualitative research. Today we use the concepts in both approaches but we must treat them differently.

#### **Triangulation**

According to Cohen and Manion (1994):

Triangulation techniques in the social sciences attempted to map out, or explain more fully, the richness and complexity of human behaviour by studying it from more than one standpoint. (p. 233)

Demand for varied research methods in the social sciences is exemplified in an early article by Campbell and Fiske (1959) who coined the term ‘convergent validity’, which later became known as triangulation. The concept of triangulation is borrowed from the field of navigation and military strategy, and hints at numerous points of relation for finding the precise placement of the destination. Triangulation involves the use of multiple methods. “The ability to apply diverse techniques to address different aspects of a complex research problem is one mark of a sophisticated social researcher” (Schutt, 1999, p. 396).

Quantitative research - Its goal is to provide objective data, to generalize it, to focus on facts that will be a solid and broad base for the study and will ensure validity and reliability. In this spirit statistical analyses will be performed of data arising from the student questionnaires (closed questionnaires), parental questionnaires, some of the teachers’ questionnaires given to a sample chosen to represent the populations, and the observations which took place in the centres over the course of the lessons.

Qualitative study - aims to search for personal knowledge which deals with subjective truth, provides viewpoints and attitudes and “tends to be narrow in scope” (Richardson, 1993, p. 15). It studies a topic in depth and mainly relates to the meaning of issues. The interviews that were performed over the course of the study with supervisors, educational welfare managers, centre managers and some of the teachers relate more to this approach. Hammersly and Atkinson (1989) point out that:

What is involved in triangulation is not the combination of different kinds of data but rather an attempt to relate different sorts of data in such a way so as to counteract various possible threats to the validity of our analysis. (p. 199)

Use of a number of methods to evaluate the educational curriculum and obtain stakeholders' views within the framework of enrichment clubs involved:

1) interviews with supervisors, managers and teachers; 2) gathering data via questionnaires; 3) observations; 4) document analysis. Triangulation between methods checks information one against another and compare findings from these different methods. Integration of the results would give more confidence in the conclusions. It would reinforce the belief in the validity of the results and enrich understanding of the study (Wellington, 2000; Johnson, 1994; Levy, 1990; Cohen and Manion, 1994). Triangulation enables one to evaluate and to present the curriculum in a comprehensive and complete manner.

## **Reliability**

One of the questions that researchers deal with is the precision or reliability of a certain measurement. “A scale or test is reliable to the extent that repeated measurement made by it under constant conditions will give the same result” (Moser and Kalton, 1989, p. 353). There are some points that researchers agreed upon in their definitions: replication of the process would ensure consistency; constant conditions; and similar results on different occasions (Bell, 1987; Yin, 1984; Silverman, 2000).

There are two types of reliability:

1. Stability - when recurring measurements under equal conditions lead to similar results over time (Herbert, 1990; Burns, 2000).

2. Reliability between judges - when different researchers attain similar results (Alreck and Settle, 1985; McNeill, 1990; Richardson, 1993).

Quantitative findings are often more reliable than the interpretation but "where reliability is a problem there is advantage in using more than one kind or source of data" (Aspinwall et al, 1994, p. 218 quoted in Coleman and Briggs, 2002).

The research questions deal with examining the world-views of the stakeholders regarding enrichment centres for the gifted. The qualitative approach used interviews and observations to examine the goals of the project, the rationale behind the centres, the content of the enrichment programme and its suitability to the needs of gifted students. As early as the stage of planning the research tool, it was clear to me that, as one of the staff managing the project and as one familiar with the centres' activities, a problem of "subjectivity" could arise. My knowledge of the subject could have led me to draw conclusions quickly and to lead interviewees towards "desirable" answers coinciding with my perceptions. Awareness of this problem made me more careful while attempting to obtain objective information.

There was no possibility of performing recurring tests on the questionnaires and the interviews which could help to cross-check the findings (other than in the pilot) because the time frame for performing the research was very limited – between the months of November and May. These factors led me to consider adding quantitative methods in order to validate the findings and test their precision and reliability, using questionnaires, and processing them using statistical analysis.

The research interview questionnaires (Appendices 4 and 6) were carefully planned according to the role of each type of respondent. Throughout all of the interviews, the questions were asked as a continuous series, in a regular order, according to a structured questionnaire which had been prepared ahead of time. To strengthen reliability I included in the questionnaire part of unstructured responses. At the end of each interview, I allowed room for the interviewees' personal comments, assuming that each interviewee would have some comment on the process or the issues which had not been raised.

In order to receive reliable results from the research tools in the present study - the questionnaire, the interview and observations - questions were composed with identical content for all of the tools. For example: questions about satisfaction and enjoyment were included in teachers', students' and parents' questionnaires (Appendices, 6, 7 and 8) and the issue was seen through observation in the club. The reliability of the research tool is affected by a number of factors including formulation/wording of the questions, the mood of the respondent and interviewer, the amount of information that the respondent has, and the physical setting.

Another way of achieving reliable results was through two questions, in the same questionnaire, designed to measure the same aspect but in different formulation, for example: "we learn new things at every meeting", and "I learn many new things here" (student questionnaire, Appendix 7).

During the interviews no recording devices were used. The advantage of using such devices is the option of going back and re-examining the response, but the disadvantage is a lack of comfort caused to the interviewees. I preferred the feeling of openness for the interviewee in a dialogue situation, although aware that the main difficulty for me would be the necessity of being fast in writing down responses.

In order to consider the limitations of reliability it is customary to record the data along with a distribution index such as a range or standard deviation. The distribution index indicates how the results would be distributed if a re-examination were done. However, the problems involved in measurement errors and lack of reliability are greater in the social sciences than in the natural sciences because of the relative and subjective interpretation of the researcher. In the natural sciences analysis tends to be of more objective and precise facts while in a qualitative approach the research tool can never be neutral.

## **Validity**

Validity, like reliability, has traditionally been associated with quantitative research rather than qualitative research. "Validity is the ability of an instrument to measure what it is meant to measure" (Hornik 1988, p. 27) (Morison, 1999; McNeill, 1990; Burns, 2000; Herbert, 1990). A research tool is valid only if it stands up to the

measure of accepted logic. The criterion for determining the validity of an index is external because of the fact that "one compares it to concepts or other findings that are not part of it and do not depend on it" (Kiman, 1977 p. 30). The term validity is relative but it is important in providing trust in the research results and the measurement tools. According to Silverman (2000) "validity is another word for true" (p. 175) and the researcher must show that his/her methods were reliable and ensure that the conclusions were valid/true. This could be applied to quantitative research which argues that its findings are concise, precise and scientific. However, in qualitative research tools, the explanation and the significance of the results must also be part of the presentation of the data.

Writers on research methods draw a distinction between two types of validity:

1. Internal validity, which relates to "the extent that research findings accurately represent the phenomenon under investigation" (Bush, 2002, p. 66).

The process of planning and constructing the measurement tools was long, but I had no doubt that it was necessary to test their validity before the data gathering stage. I knew that any deficiency in the data could undermine the research results. When constructing the questionnaires, all of the items were coordinated with the research questions which examined the perceptions of the stakeholders regarding the enrichment centres for the gifted students. The goal was to construct a broad and comprehensive range of descriptions of facts and findings regarding the issue being studied.

In relation to survey research, Cohen and Manion (1994) argue that there are two factors which may cause a lack of validity: 1) incomplete questionnaires and 2) unreturned questionnaires. This is because those who do not fully complete the questionnaires or do not return them may have given different responses to those who do. Nevertheless, I could conclude that my research findings were valid, because the questionnaires that were returned were fully completed and a vast majority was returned to me. For example, of the 500 student questionnaires distributed, 468 were returned.

2. External validity relates to the degree to which we can generalise the findings to the population the sample represents. It is usually applied to quantitative research.

In the present research, a very large sample was chosen (50%), and the probability that it does in fact represent all of the students in the centres, is high. The process of testing generalisability can also be performed for a different project with identical components but, in this case, such a test could not be performed, because the enrichment centre project in the North of Israel is unique.

The present research is an evaluative study which examines the importance of an enrichment programme for gifted students according to the world-view of different stakeholders. The degree of validity and reliability of the answers to the research questions will allow me to formulate conclusions regarding the importance of the project and its suitability to the needs of gifted students more confidently.

Validity checks are of three types:

1. Content - the degree to which the items represent the world of content that the researcher is interested in, according to its subjective evaluation. It is concerned with all of the data it is supposed to be measuring (an accumulation of all of the items from the world of content of the respondent). For example: examining enrichment curricula and their adjustment to the gifted child.
2. Construct - the measurement must reflect the structure in which the researcher is interested. Cronbach and Meehl, (1955) recommended using the term 'construct validity' in cases where the research tool measures theoretical concepts. For example: Does the IQ test measure intelligence or other traits?
3. Prediction - measuring one variable in order to predict according to another variable - the criterion. It requires that the measurement will predict behaviour or results. It includes comparing the results of operating the index studied with the result of operating another index whose degree of validity is known (Burns, 2000; Burroughs, 1971). For example: predicting the success of the gifted child identified through an IQ test.

The aim of the researcher is to create a research tool that will be concerned with comprehensive data in order to cover all that is supposed to be measured and to examine its relevance to the research questions. In this study the content validity relates to concepts of the curriculum and the gifted student. The construct validity can be found in the construct factors such as management of the enrichment centres, elements of the curricula and the image of the gifted student. The predictive validity

refers to a test or instrument or theory which we use to predict what will happen and, if it does, it suggests that the theory or the test is valid. For example: will a student who gets high scores in an IQ test automatically succeed in school?

Validity can be obtained by triangulation of several research tools, but the researcher must minimize bias that may occur through the characteristics of the people involved in the research and the content of the questions. For example: there is the phenomenon of the “desired” answer and the question of validity: can answers about topics that are not important to the study, or that they do not have information about, be seen as valid measures? The interview must avoid embarrassing, sensitive or/and threatening questions. The interviewer must clarify to the teacher the goal of the study and the importance of his/her answers, this will increase their motivation to answer, improving the quality and precision of the answers, which should lead to greater validity in the questionnaire. Reliability is a necessary but not sufficient condition for validity. The quality of the connections between validity and reliability depend on the meanings and the theory in which the variable being studied is anchored.

In summary, the most appropriate and effective approach is likely to be combining different methods allowing the advantages to be enjoyed and limiting the disadvantages of each method, as each method may cover the disadvantages of the others. The problem of validity is severe when the research is only based on one index or one method. The more the results are based on more data gathered in varying fashions, the stronger the validity and reliability of the study, despite the different disadvantages of each single method.

The research must ensure that the findings are authentic. Reliability, validity and triangulation are the main concepts to address this. They can be constructed in quantitative and qualitative studies and they "should satisfy both researcher and reader that the study is meaningful and worthwhile" (Bush, 2002, p.71).

### **3.13 Pilot (P)**

A pilot study is a small study that is a sort of general rehearsal for the overall study (De-Fleur *et al*, 1958). In such a study most of the research procedures that will be performed in the future in the overall study are performed. By using this method, one



can find difficulties in the initial research stages and receive initial impressions regarding the findings (Peres and Yatziv, 1995). The only way to test if the questionnaires and the questions in the structured interview were in fact formulated properly and their intents were clear is to try it out on other people and see whether they find it as clear as the researcher does. "This stage...should never be omitted. In it, the researcher tries out...on a number of people who are similar to those...in the actual research" (McNeill, 1989, p. 34). Piloting "is an important step even if your sample is a small one" (Richardson, 1993, p. 71). Questionnaires are likely to need clarification of understanding and modification to the formulation of the questions.

The pilot took place in one of the enrichment centres, based on partial research. It was included in the chapter four as data number 3. The questionnaires were given out to students, and two questionnaires to teachers consisting of mainly general information. I performed one interview with a teacher and one with a centre manager; these were comprehensive and in depth. One observation was performed in a class.

Throughout the entire process, I also examined the time dimension. Managers' and teachers' interviews can last between one and two hours, completion of students' questionnaires may last up to twenty minutes. In all of the questionnaires, the formulation of a small number of questions was changed mainly for clarification. Some questions were erased after they were not answered, mainly because of lack of information on the part of the respondent. In the students' questionnaire, a general definition was changed after every student asked me about it (community instead centre). In the observation, one question was removed, about discipline problems because no such problems were found. Finally, a question was added to the questionnaires for the centre managers and teachers; they were asked to express their opinion and offer their recommendations, thus raising additional points not expressed before in the questionnaire.

After the pre-test or the pilot that provided the final formulation for the questionnaires and the structured interviews, the process of gathering data and performance of the study began, according to the following description.

### **3.14 Research Performance Process (Q)**

A number of visits took place at each of the ten centres. The first meeting was with the manager of each centre who had given me permission the year before the research started to enter the centre and perform the study. At the meeting I presented the questions that I wanted to ask in order to receive his/her general agreement. A second meeting included an interview with the manager to complete the questionnaire. A third meeting included entering the classes for a limited time to explain, distribute questionnaires and their completion by the students. Parents' questionnaires, including self-addressed stamped envelopes, were distributed via a sample of students (every second student).

On the same day I met with the teachers (in the recess between the clubs) and explained the research goals, giving out questionnaires to the teachers who agreed to complete them, some questionnaires were returned in the mail and some were collected at the next meeting. A fourth meeting took place in coordination with the centre manager and one or two teachers who had agreed to let me observe a lesson. On the same day and often in an additional meeting teachers who agreed were interviewed.

### **3.15 Analysing the data (R)**

#### *The analysis of quantitative data*

Analysis of numerical data can be quick and precise using a computer package (SPSS). In the study I used: **a.** descriptive statistics - statistical measurements - the mean and the standard deviation. **b.** Factor analysis – related to a technique in which the number of variables is reduced, without losing the original information that the variables provided (Punch, 2000; Babbie, 1997; Frankfort and Nachmias, 1996). **c.** Coding – “coding is the process by which responses are classified into meaningful categories” (Frankfort and Nachmias, 1996, p. 335). Most codes involved numbers because computers deal more efficiently with them (Dane, 1990; Salant and Dillman, 1994).

The responses in the open-ended questions were categorized by discerning patterns related to the research questions. For example: in the parents' questionnaire, (Appendix 8) parents were asked about “the areas of involvement”. I divided the

answers into categories and gave them numbers (information 3, choice of clubs 4, visits 5, and feedback 8); in the students' questionnaire, they were asked "what they liked in the centre". I gave a number to the categories received from their answers: content, fun, friends, activities, teaching methods, the teacher and the final product. This process enriched my report by providing authenticity (Wellington, 2000).

### *The analysis of qualitative data*

The common elements in the term qualitative research are concerned with the way people understand issues and patterns of behaviour (Denscombe, 2001).

The most fundamental characteristic of qualitative research is its express commitment to viewing events, actions, norms and values, from the perspective of the people who are being studied. (Bryman, 1993, p. 61)

According to Sabar (2001) analysis is a procedure of classification. This is the quantitative side of the qualitative research. My study deals with perceptions of the stakeholders who take part in the enrichment centres for gifted students, and I used this definition to tell the story of the project, its rationale, establishment, and goals, through their eyes. The analysing of these qualitative data emphasized my descriptive method to interpret and to explain in detail the data about the enrichment centres I have investigated. For example: discussion about the goals of the project in the eyes of the stakeholders through the objective approach (in chapter five). The analysis in the study includes: coding, extracting and comparing data - in a descriptive and interpretative form (Punch, 2000).

In summary, the "analysis is an integral part of the whole research process...it shapes and is shaped by the subject...and it pervades each and every aspect of the research process from project design to the writing of the report" (Watling, 2002, p.277).

Continuing the scheme of the actions, in the fourth year, another meeting took place for reporting findings (from section **R**) to the supervisor and centre managers. At the end of the study discussion of findings would take place in order to draw conclusions (from section **T**), and apply them in the CSK centres. The findings will then be

presented to the representatives of the Ministry of Education in the Northern district as a summarizing evaluation.

### **3.16 Summary (S)**

Upon definition of the research topic, two paradigms were adopted – quantitative and qualitative – which created the research framework. Gathering of data took place through the survey method – using questionnaires, interviews and observation as research tools. The processing of the findings was divided into statistical analysis and qualitative analysis. The issuing of results, from a practical standpoint, relates to improving understanding of the project. One of the key issues is ensuring that the outcomes will be implemented by the decision-making – the stakeholders. The second key issue is the need to provide feedback to all of the stakeholders who participate in the enrichment centre project.

## **Chapter 4**

### **Findings**

The chapter on research methods clarified the intent to use two paradigms, quantitative and qualitative, for processing data. The findings were gathered according to the survey approach using questionnaires, interviews and observations as research tools. The quantitative data will be presented using statistical processing accompanying the research questions. The qualitative analysis will be performed according to fields, topics and categories.

#### **Part A – Quantitative Findings**

In the first stage, I will present an analysis of the quantitative findings stemming from the closed questions formulated in the questionnaires, and from criteria formulated by the respondents in the interviews (centre managers, teachers, students and parents (the stakeholders)). Observations have also been processed quantitatively as answers were defined on a scale of 1-3.

#### **4.1 Managers' Findings**

The first research question related to the programme's goals as perceived by the centre managers and stakeholders such as supervisor, educational welfare managers and teachers. The managers were given open-ended questions and were asked to state the programme's goals as perceived by them. Nine goals emerged from the managers' answers and these are shown in Table 4.1.

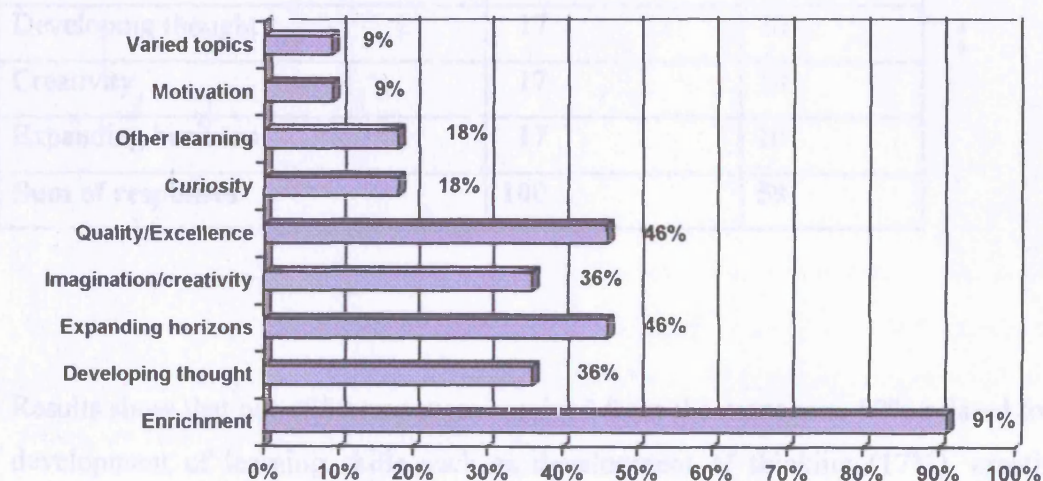
**Table 4.1: Managers' Goals**

<b>Goals</b>	<b>% of responses</b>	<b>n = 10<sub>(managers)</sub></b>
Enrichment	29	10
Developing Thought	12	4
Expanding Knowledge and Horizons	15	5
Imagination and Creativity	12	4
Quality and Excellence	15	5
Curiosity	6	2
Other Learning	6	2
Motivation	3	1
Varied Topics	2	1
<b>Sum of responses</b>	<b>100</b>	<b>34</b>



As seen in Table 4.1, out of 34 responses received from the ten managers, most responses (29%) see enrichment as one of the programme's goals. All managers view this as one of the programme's goals. Other goals upon which there is agreement are development of thinking (12% of the responses related to this goal, 36% of the managers related to it); expanding knowledge and horizons (15% of responses related to this goal, 46% of the managers related to it); and quality and excellence (15% of responses related to this goal, 46% of the managers related to it). Other goals were stated by one or two managers and hence not agreed upon. Graph 4.1 shows the percentage of managers who related to each goal.

**Graph 4.1: Percentage of Managers Relating to Each Goal**



The second research question related to the way the centre managers decided upon the topics and subjects of the programme. The managers were given open-ended questions and were asked to state their considerations in planning the curriculum. The managers mentioned twelve planning considerations and these are shown in Table 4.2.

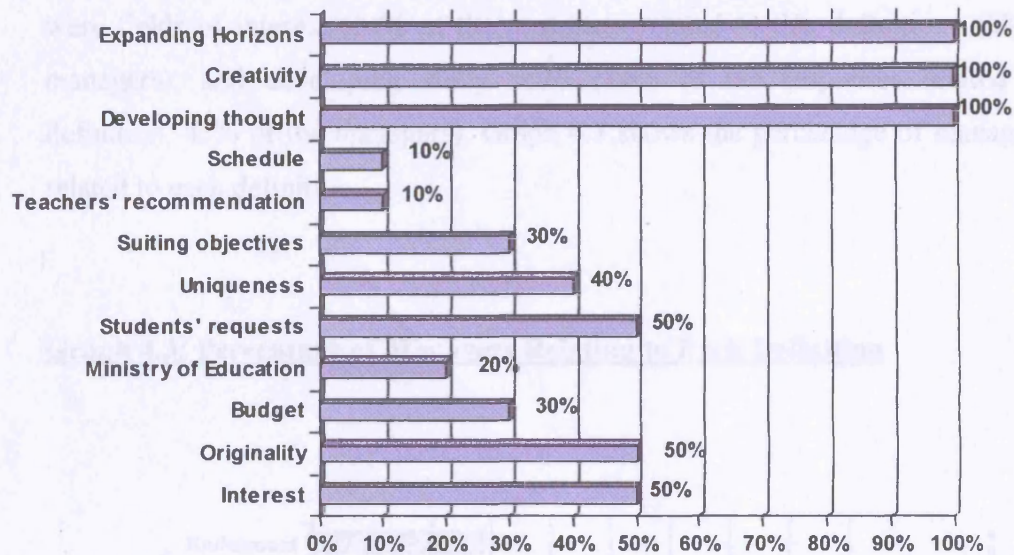
**Table 4.2: Managers' Planning Considerations**

Planning Considerations	% of responses	n = 10 (managers)
Interest	9	5
Originality	8	5
Budget	5	3
Ministry of Education	3	2
Students' requests	8	5
Uniqueness	7	4
Suitability with objectives	5	3
Teachers' recommendations	2	1
Schedule	2	1
Developing thought	17	10
Creativity	17	10
Expanding horizons	17	10
<b>Sum of responses</b>	<b>100</b>	<b>59</b>

Results show that out of 59 responses received from the managers, 50% related to the development of learning skills such as development of thinking (17%), creativity (17%) and expanding horizons (17%). All managers (n=10) related to these topics. Less frequent responses were students' requests (8%), interest (9%), and originality (8%), to which 50% (n=5) of the managers related. Graph 4.2 shows the percentage of managers that related to each consideration.



**Graph 4.2 Percentage of Managers Relating to Each Consideration**



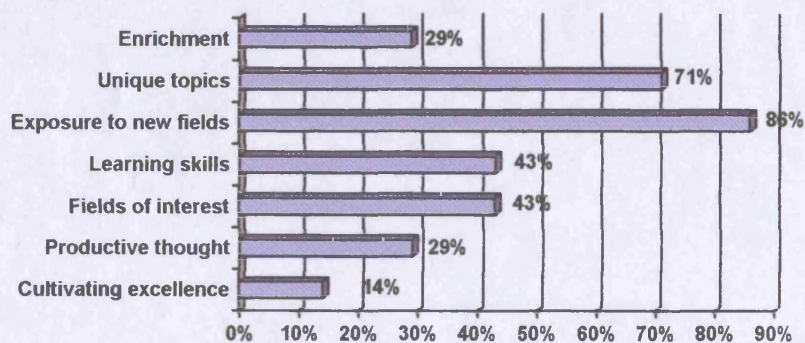
The second research question also related to the way that the managers defined the programme to the teachers. The managers were given two open-ended questions in which they stated how they defined the programme. The managers provided seven definitions of the programme and these are shown in Table 4.3.

**Table 4.3: Managers' Programme Definition**

Programme Definition	% of responses	n =7 <sub>(managers)</sub>
Cultivation of excellence	4	1
Productive thought	9	2
Fields of interest	14	3
Developing study skills	14	3
Exposure to new fields	27	6
Unique topics	23	5
Enrichment	9	2
<b>Sum of responses</b>	<b>100</b>	<b>22</b>

Results show that out of 22 responses received from the managers, 27% related to exposure to new subjects. 86% of managers (n=7) related to this topic. Another frequent definition is that the programme relates to the uniqueness of the topics (23% of responses related to this definition, 71% of the managers). Less frequent definitions were fields of interest (14% of the responses related to this definition, 43% of the managers), and developing study skills (14% of the responses related to this definition, 43% of the managers). Graph 4.3 shows the percentage of managers who related to each definition.

**Graph 4.3: Percentage of Managers Relating to Each Definition**



#### **4.2 Teachers' Findings**

The first research question dealt with the way teachers perceive the programme's goals. The teachers related to this topic in two ways: first in the teachers' questionnaire in which they were provided with open-ended questions, and second in the personal interviews. In the questionnaire, the teachers were asked to state the unique goals that they have set for their teaching. The analysis provided 18 unique goals in teaching which are shown in Table 4.4.

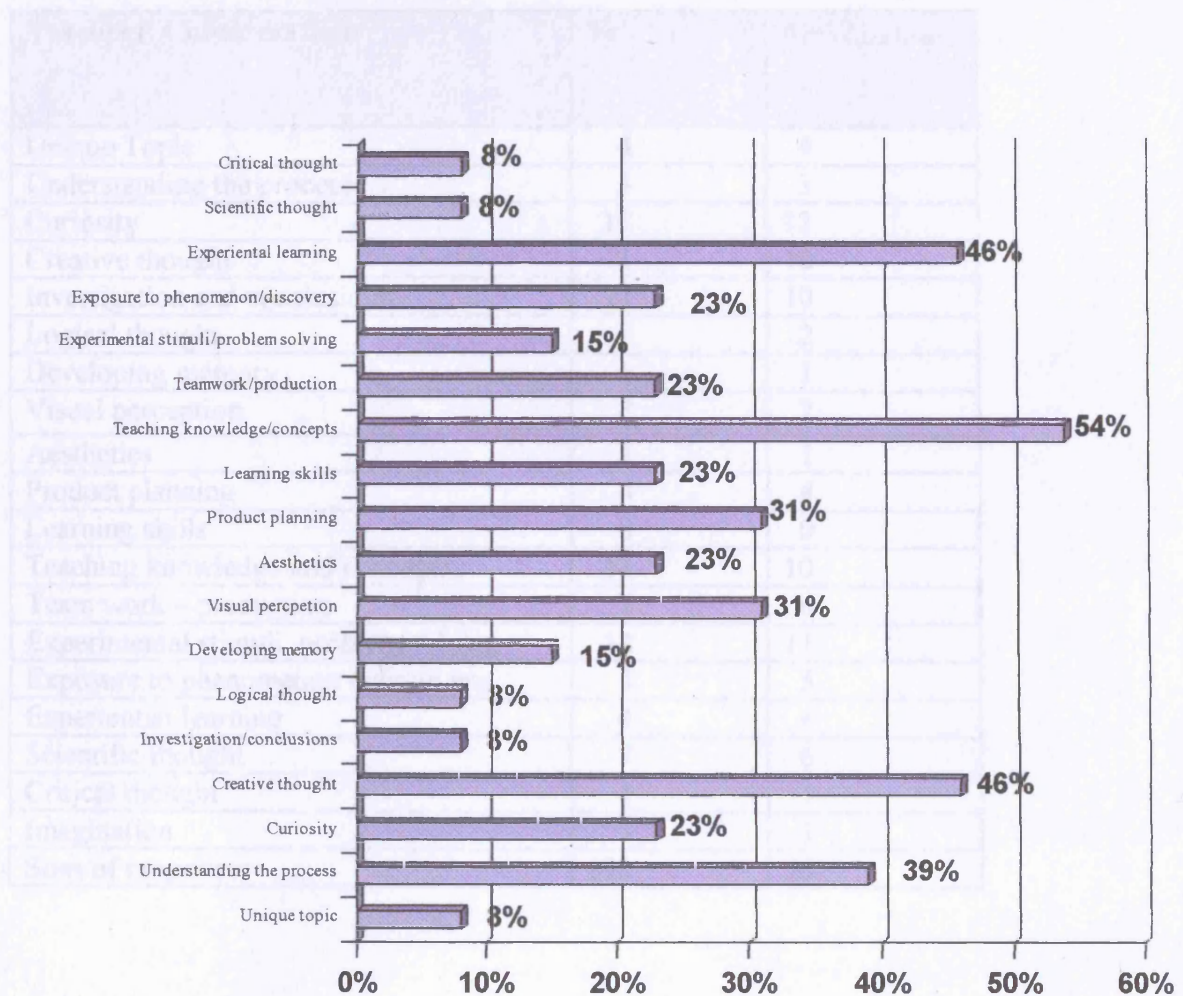


**Table 4.4 Teachers' Unique Goals**

Goals	%	n =13 <sub>(teachers)</sub>
Unique Topic	2	1
Understanding the process	9	5
Curiosity	5	3
Creative thought	11	6
Investigation and conclusions	2	1
Logical thought	2	1
Developing memory	4	2
Visual perception	7	4
Aesthetics	5	3
Product planning	7	4
Learning skills	5	3
Teaching knowledge and concepts	12	7
Team work – production	5	3
Experimental stimuli, problem solving	4	2
Exposure to phenomenon - discovery	5	3
Experiential learning	11	6
Scientific thought	2	1
Critical thought	2	1
<b>Sum of responses</b>	<b>100</b>	<b>56</b>

As seen in Table 4.4, out of the 56 responses received from the 13 teachers, most responses (12%) related to knowledge acquisition as one of the unique goals of the programme (54% of the teachers related to this goal). Other goals that were most frequent were creative thought (11% of the responses, 47% of the teachers provided this goal), experiential learning (11% of the responses, 47% of the teachers provided this goal), and understanding the process (9% of the responses, 39% of the teachers provided this goal). The balance of the goals was stated by fewer teachers and was therefore less agreed upon. Graph 4.4 shows the percentage of teachers who related to each goal.

**Graph 4.4 Percentage of Teachers Relating to Each Goal**



In the personal interviews the teachers were asked about the considerations (relating to goals) that led them to choose the topic of the programme (relating to the second research question). The teachers related to the same topics as when they were asked about the programme's goals as shown in Table 4.5.

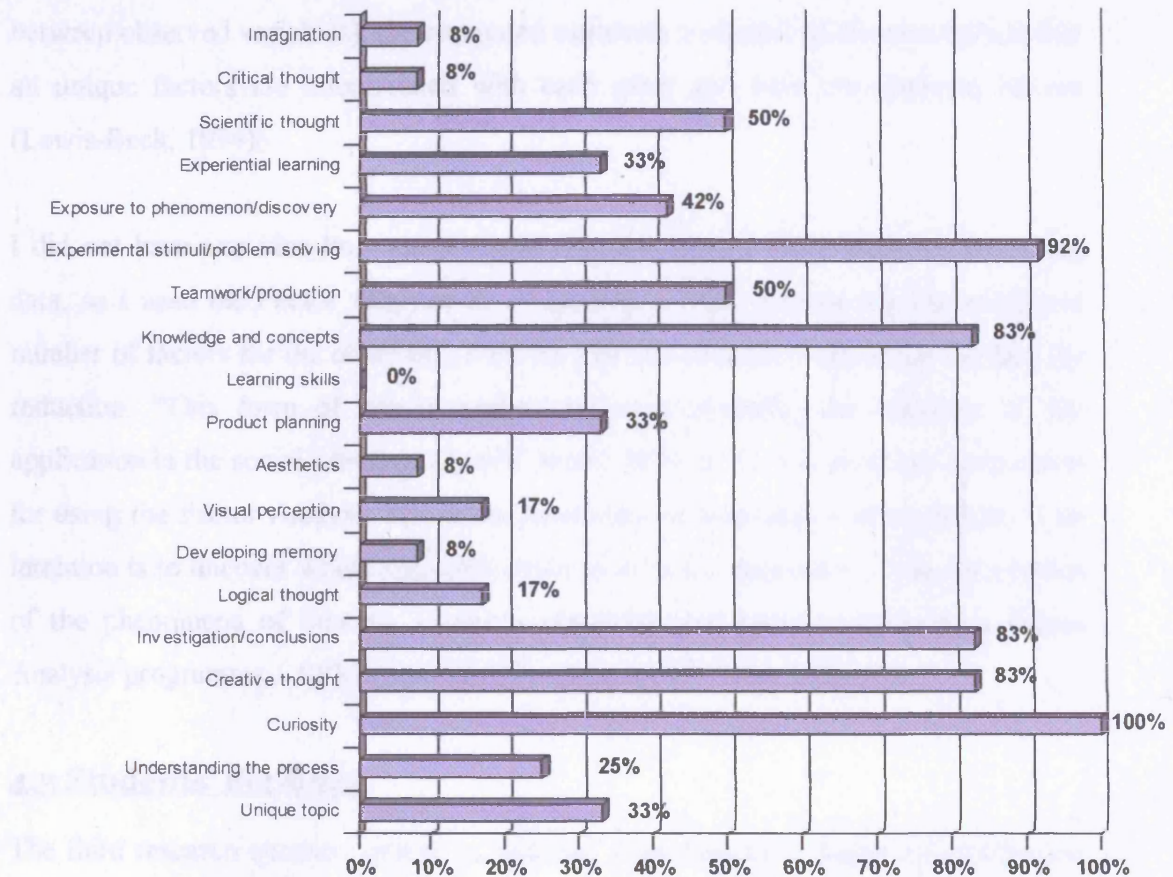


**Table 4.5 Teachers' Considerations**

Teachers' Considerations	%	n =12 <sub>(teachers)</sub>
Unique Topic	4	4
Understanding the process	3	3
Curiosity	13	12
Creative thought	11	10
Investigation and conclusions	11	10
Logical thought	2	2
Developing memory	1	1
Visual perception	2	2
Aesthetics	1	1
Product planning	4	4
Learning skills	0	0
Teaching knowledge and concepts	11	10
Team work – production	7	6
Experimental stimuli, problem solving	12	11
Exposure to phenomenon – discovery	5	5
Experiential learning	4	4
Scientific thought	7	6
Critical thought	1	1
Imagination	1	1
<b>Sum of responses</b>	<b>100</b>	<b>93</b>

The results show that, out of 93 responses received from the teachers, most relate to considerations such as curiosity (13% of the responses related to this goal, 100% of the teachers related to this), experimental stimuli and problem solving (12% of the responses relate to this goal, 92% of the teachers related to it), and providing knowledge and concepts (11% of the responses related to this goal and 83% of the teachers related to it), in choosing the topic of the programme. It is interesting to note that the teachers did not relate to goals such as learning skills when choosing a subject for their programme. This may be because they relate to several learning skills separately, such as logical thought or development of memory. Graph 4.5 shows the percentage of teachers who related to each consideration.

**Graph 4.5 Percentage of Teachers Relating to Each Consideration**



The data from research questions three and four will be processed using Factor Analysis. Factor Analysis attempts to identify underlying variables, or factors, that explain the pattern of correlations within a set of observed variables. It is often used in data reduction to identify a small number of factors that explain most of the variance observed in a much larger number of manifest variables (Basilevsky, 1994).

The data should have a bi-variate normal distribution for each pair of variables (I am aware of the fact that this assumption does not exist in the present statistical analysis

because the variables are rated on a scale of 1-4), and observations should be independent (this assumption exists in the present analysis).

The Factor Analysis model specifies that variables be determined by common factors (the factors estimated by the model) and unique factors (which do not have overlap between observed variables); the computed estimates are based on the assumption that all unique factors are uncorrelated with each other and with the common factors (Lewis-Beck, 1994).

I did not have any idea how many underlying dimensions there were for the given data, so I used the Factor Analysis as an expedient way of screening the minimum number of factors for the observed variables, and as a means of exploring the data for reduction. "This form of use is exploratory with probably the majority of the application in the social sciences" (Lewis- Beck, 1994, p. 3). The principal motivation for using the Factor Analysis lies in the possibility of meaningful interpretation. The intention is to uncover which variables retain as effective measures of the dimensions of the phenomena of interest. I used a computer package that contains a Factor Analysis programme – SPSS (Statistical Processing Solutions Software).

#### **4.3 Students' Findings**

The third research question related to students, regarding their degree of satisfaction and enjoyment of the programme. The student questionnaire consisted of 19 items that related to student satisfaction with the programme. The students answered each item on a scale of 1-4 where 1 represented disagreement and 4 represented agreement with the item. The first step was to arrange the basic data in a systematic way, in a data matrix (Appendix 17).

In order to reduce the number of variables dealt with, principal components factor analysis (with Varimax rotation) was conducted (Appendix 16). The factor analysis yielded five factors. Since the fifth factor contained only one item, this factor was removed from the analysis.

Table 4.6 presents the results of this analysis.



**Table 4.6 Factor Analysis Results: Factor Loadings, Explained Variance of Factors, Internal Consistency and Descriptive Statistics (Mean, SDs') for the Student's Questionnaire.**

Factor name	Item	Factor loadings	Mean	SD	% of variance	Cronbach Alpha
Satisfaction with the programme	14. Continue to participate	.81	3.60	.79	17.9	0.84
	10. Very interesting	.71	3.62	.65		
	27. It is fun	.70	3.17	.96		
	25. I'll recommend it to my friend	.68	3.42	.89		
	20. Learn new things	.56	3.58	.72		
Satisfaction with the programme's teacher/ instructor	21. Answers all questions	.73	3.57	.69	15.5	0.78
	16. Makes effort that we understand	.72	3.72	.59		
	15. Is very good	.70	3.70	.61		
	24. Acts friendly	.70	3.55	.75		
	17. The students understand well	.44	2.98	.89		
Quality of learning	22. I receive self confidence	.77	2.90	1.09	11.9	0.71
	18. It helps me at school	.73	2.86	1.12		
	19. We understand here better	.54	3.40	.76		
	13. We learn new things every meeting	.45	3.29	.87		
Satisfaction with being accepted to the programme	11. My parents were happy	.83	3.77	.54	9.3	0.56
	26. My parents want me to continue	.54	3.66	.69		
	9. I was happy to be accepted to the programme	.51	3.72	.62		
	23. I met new friends	.42	3.10	1.11		

The four factors that were yielded in the factor analysis were the base for constructing four variables of satisfaction in the students' questionnaire. The factors were computed using the Bartlett Factor Scores method, normalized with a mean of 0 and SD=1. All the analyses that involved these factors were performed according to the Bartlett Factor Scores.

## Description of the Sample

**Table 4.7 Frequency Distribution of Demographic Characteristics of Students**

		N	%
Gender	Male	215	47%
	Female	246	53%
Grade	3 <sup>rd</sup>	44	9%
	4 <sup>th</sup>	227	49%
	5 <sup>th</sup>	121	26%
	6 <sup>th</sup>	74	16%

**Table 4.8 Frequency Distribution of Students in each Centre**

		n	%
Centre	1	47	10%
	2	53	11%
	3	29	6%
	4	74	16%
	5	32	7%
	6	30	6%
	7	40	9%
	8	30	6%
	9	24	5%
	10	50	11%
	11	59	13%

## **Quantitative Results**

The third question in the current study was examined using quantitative statistical tools. This research question was about the degree of satisfaction of the gifted students, as follows:

What is the degree of satisfaction and enjoyment of the gifted students?

In order to answer this question, further research questions could be derived from this main one. For example:

- 1) Are there any significant differences between boys and girls involved in the programme, in their satisfaction degree?
- 2) Are there any significant differences between students in different grades, in the satisfaction degree? (Younger children may be more satisfied than older ones). The rationale behind this research question is the differences in expectations. It may be that the older the student is, the higher are his/her expectations. Therefore, satisfaction level should be higher when expectations are lower, and vice versa.
- 3) Are there significant differences between centres for gifted students, in their students' level of satisfaction with the programme?

Although there was not sufficient space to explore these questions in this thesis, they could be seen as possible areas for future research.

In order to test the research questions, multivariate analyses of variance were conducted (MANOVA), followed by unvaried F tests for exact significant differences. In addition, post hoc Scheffe tests were used when significant differences between multiple groups were found.

The MANOVA analyses were as follows:

- 1) MANOVA with satisfaction factors as dependent variables, and gender of student as an independent variable.
- 2) MANOVA with satisfaction factors as dependent variables, and grade the student is studying in as an independent variable (3<sup>rd</sup> to 6<sup>th</sup> grades).
- 3) MANOVA with satisfaction factors as dependent variables and the specific centre the student is attending as an independent variable.

**Table 4.9 Mean, SDs' and MANOVA Results for Satisfaction level, According to Students' Gender**

Dependent variable	Statistical measure	Gender		F (df = 1,426)
		Male n=198	Female n=230	
Satisfaction with programme	<u>M</u>	-.25	.21	23.12***
	<u>SD</u>	1.18	.76	
Satisfaction with the programme's instructor	<u>M</u>	-.05	.05	.98
	<u>SD</u>	1.07	.95	
Quality of learning	<u>M</u>	.00	-.02	.07
	<u>SD</u>	1.02	.98	
Satisfaction with being accepted to the programme	<u>M</u>	-.23	.19	19.14***
	<u>SD</u>	1.15	.82	

*Wilks Lambda* = .90, *MF* (4,423) = 11.34,  $p < .001$ ; \* $p < .05$ ; \*\*\* $p < .001$

Table 4.9 indicates significant differences between boys and girls, in two satisfaction measures. Girls were found to have a higher level of satisfaction with the programme, and were found to be more satisfied with being accepted to the programme ( $F_{(1,426)} = 23.12$ ,  $p < .001$ ;  $F_{(1,426)} = 19.14$ ,  $p < .001$ , respectively).

In order to test the second research question, which aimed to explore the differences between grades, in satisfaction measures, additional MANOVA testing was carried out. The results of the MANOVA are presented in Table 4.10.



**Table 4.10 Mean, SDs' and MANOVA Results for Satisfaction Level, According to Students' Age (Grade)**

Dependent variable		Age group				<b>F</b> (df = 3,429)
		3rd grade	4th grade	5th grade	6th grade	
		n=40	n=212	n=115	n=66	
Satisfaction with programme	<u>M</u>	.08	.02	-.07	.01	.32
	<u>SD</u>	.75	1.00	1.04	1.09	
Satisfaction with the programme's instructor	<u>M</u>	-.17	.09	-.12	.01	1.52
	<u>SD</u>	.75	.91	1.10	1.20	
Quality of learning	<u>M</u>	.65	.03	.07	-.60	15.16***
	<u>SD</u>	.66	1.02	.92	.95	
Satisfaction with being accepted to the programme	<u>M</u>	.14	.01	.03	-.20	1.24
	<u>SD</u>	.77	.99	1.05	1.06	

*Wilks Lambda* = .88, *MF*<sub>(12,1127)</sub> = 4.48,  $p < .001$ ; \*\*\*  $p < .001$

The results in Table 4.10 indicate significant differences between age groups with respect to quality of learning ( $F_{(3,429)} = 15.16$ ,  $p < .001$ ).

Since four age levels were compared, post hoc Scheffe tests were conducted. The Scheffe test is an appropriate test in order to examine pair-wise differences between different sized groups.

Scheffe results indicated significant differences between 6<sup>th</sup> graders vs. 4<sup>th</sup> and 5<sup>th</sup> graders. Older children were less satisfied with the quality of learning than fifth and fourth graders.

Table 4.11 presents Scheffe homogenous subset results.

**Table 4.11 Scheffe Post Hoc Homogenous Subset Results in Quality of Learning****According to Age Groups**

Class	N	Subset for alpha = .05		
		1	2	3
Sixth graders	66	-.60		
Fourth grade	212		.03	
Fifth graders	115		.07	
Third graders	40			.65
Sig.		1.00	.99	1.00

The results of Table 4.11 show that third graders are significantly more satisfied than all other age groups. In addition it was found that fourth and fifth graders similarly perceive the quality of learning, but significantly higher than sixth graders.

**Table 4.12 Mean, SDs' and MANOVA Results for Satisfaction Level, According to Centre**

		Centre											F
		1 n=46	2 n=46	3 n=26	4 n=71	5 n=32	6 n=26	7 n=36	8 n=30	9 n=24	10 n=44	11 n=54	
Satisfaction with the programme	M	-.46	-.25	-.35	.03	-.02	.34	.30	.29	-.11	.27	.05	2.92**
	SD	1.10	1.29	1.24	1.05	.97	.87	.79	.74	1.16	.64	.70	
Satisfaction with the programme's instructor	M	.18	.04	.37	.09	.21	.08	-.28	.52	-1.32	-.03	-.14	6.92***
	SD	.70	.97	.90	1.14	.91	.93	1.07	.40	1.52	.74	.74	
Quality of learning	M	.16	.14	-.32	-.22	-.16	-.33	-.33	.11	.12	.07	.50	3.19***
	SD	1.24	.96	1.03	1.03	.90	.84	.94	.85	.96	.98	.82	
Satisfaction with being accepted to the programme	M	.12	.14	-.57	.07	-.04	-.46	.16	.07	-.45	-.01	.26	2.67**
	SD	1.06	1.12	1.54	1.03	.83	1.13	.71	.78	1.18	.86	.57	

*Wilks Lambda* = .70, *MF* (40,1598) = 3.90,  $p < .001$ ; \*\* $p < .01$ ; \*\*\* $p < .001$

Table 4.12 indicates significant differences between all centres in all four factors tested.

In order to test paired differences between centres, post hoc Scheffe tests were conducted.

Although significant main differences were found, only one out of four factors yielded pair-wise differences. It was found that students from centre no. 9 expressed lower satisfaction than any other centres. No other differences were found.

#### **4.4 Parents' Findings**

The fourth research question examined whether or not the programme satisfied the expectations of parents. The parental questionnaire included two parts: Part A consisted of 15 scaled questions related to parents' knowledge, involvement and opinion of the programme. The questionnaire asked the parents to relate to several topics using a "yes-sometimes-no" scale. In addition, two questions related to problem solving patterns in the programme and to the degree to which parents want to be involved in the programme. Part B included a number of questions relating to personal details such as gender, country of birth, age, education, profession and details about the child. The first step was to arrange the basic data in a systematic way, i.e. a data matrix (Appendix 18).

In order to reduce the number of variables dealt with, principal components factor analysis (with Varimax rotation) was conducted (Appendix 16). The factor analysis yielded five factors.

Table 4.13 introduces the results of this analysis.



**Table 4.13 Factor Analysis Results: Factor Loadings, Explained Variance of Factors, Internal Consistency and Descriptive Statistics (Mean, SDs') for the Parents' Questionnaire.**

Factor name	Item	Factor loadings	Mean	SD	% of variance	Cronbach Alpha
Inclusion in centre activities	11. Have you participated in events	.54	2.04	.91	14.25	0.6
	13. Did you receive a feedback page	.39	1.48	.84		
	14. Dialogue between parent and teacher	.75	1.33	.64		
	15. Invited to visit the clubs	.80	1.62	.85		
Parents' familiarity	4. Familiar with the club programme	.51	2.62	.69	12.38	0.5
	5. Share experiences with the child	.78	2.75	.46		
	9. A change in the child	.67	2.11	.87		
Information	3. Enrichment activities	.63	2.56	.63	10.67	0.5
	8. Received circulars on what occurs in the club	.54	1.66	.78		
	12. Asked to pay additional money	.78	1.13	.45		
Parents' involvement	1. In general I'm satisfied	.80	2.88	.35	10.42	0.3
	6. The child expresses satisfaction	.59	2.78	.45		
	7. Involvement in choosing the club	-.51	2.35	.88		
Taking initiative	2. Parental involvement	.49	1.87	.73	9.08	0.4
	10. Personal initiative	.84	1.33	.70		

The five factors that were yielded in the factor analysis were the base comprised of the five variables of satisfaction in the parents' questionnaire. The factors were computed using the Bartlett factor scores method, normalized with a Mean = 0 and SD=1.

Since the two last factors yielded too low reliability, they were omitted from the analysis as factors. The items were each analysed separately with a  $\chi^2$  test and percent of each answer.

In order to see how many parents know about, take initiative, and are involved in the programme, the answers "yes" and "sometimes" to the questions were united into one option and given a value of one point. "No" was given a value of zero. Then, in each group of questions relating to the same issue, all scores of "one" were summed and computed into percentages, representing the percent to which parents are involved, know about and take initiative in the programme respectively.

### Description of the Sample

**Table 4.14 Frequency Distribution of Demographic Characteristics of Parents.**

		n	%
Gender	Male	36	18.6
	Female	158	81.4
Age	<40	135	67.2
	41+	66	32.8
Origin	Israel	61	30.2
	immigrants	141	69.8
Education	elementary & high school	84	42
	higher education	116	58
Location of the child	firstborn	84	42.4
	young child	55	27.8
	middle	59	29.8

**Table 4.15 Frequency Distribution of Parents in Each Centre**

		n	%
Centre	1	12	5.9
	2	24	11.9
	3	31	15.3
	4	17	8.4
	5	16	7.9
	6	4	2.0
	7	21	10.4
	8	14	6.9
	9	8	4.0
	10	26	12.9
	11	29	14.4

**Quantitative Results****Table 4.16 Mean, SDs' and MANOVA Results in Satisfaction Level, According to Parents' Gender.**

		Gender		F (df = 1,149)
Dependent variable	Statistical measure	Male n=24	Female n=127	
Inclusion in centre activities	<u>M</u>	-.06	.01	.11
	<u>SD</u>	.86	1.02	
Parents' familiarity	<u>M</u>	-.06	.04	.20
	<u>SD</u>	1.07	.99	
Information	<u>M</u>	-.18	.05	1.06
	<u>SD</u>	.63	1.06	

*Wilks Lambda* =9.91,  $MF_{(3,147)} = 4.53$ , NS;

Frequency distribution percent of parents' attitudes according to parents' gender, and Chi square results.



Dependent variable		Gender		$\chi^2$
		Male	Female	
RQ1. In general I am satisfied with the CSK clubs my child/ren participate in	yes	86	91	.84
	sometimes/ no	14	9	
RQ6. Does your child express satisfaction with his/her studies in the club	yes	72	78	.65
	sometimes/ no	28	22	
RQ7. Have you shown involvement in choosing the clubs for your children	yes	66	62	.15
	sometimes/ no	34	38	
RQ2. Does the CSK programme encourage parental involvement	yes	25	20	.52
	sometimes/ no	75	80	
RQ10. Have you taken personal initiative regarding the CSK framework	yes	23	12	.31
	sometimes/ no	77	88	

Table 4.16 does not indicate significant differences in satisfaction level regarding parents' gender.

**Table 4.17 Mean, SDs' and MANOVA Results in Satisfaction Level, According to Parents' Age.**

Dependent variable		Age		F (df = 1,154)
		<40 n=103	41+ n=53	
Inclusion in centre activities	<u>M</u>	.02	-.05	.01
	<u>SD</u>	1.00	1.00	
Parents' familiarity	<u>M</u>	-.01	.01	.37
	<u>SD</u>	1.01	.99	
Information	<u>M</u>	.03	-.07	.02
	<u>SD</u>	1.06	.87	

*Wilks Lambda* = .996, *MF* ( 3,152) = 0.18, NS;

Frequency distribution percent of parents' attitudes according to parents' age, and Chi square results.

		Age		$\chi^2$
		<40	41+	
RQ1. In general I am satisfied with the CSK clubs my child/ren participate in	yes	90	88	.29
	sometimes/ no	10	12	
RQ6. Does your child express satisfaction with his/her studies in the club	yes	79	74	.64
	sometimes/ no	21	26	
RQ7. Have you shown involvement in choosing the clubs for your children	yes	65	59	.91
	sometimes/ no	35	41	
RQ2. Does the CSK programme encourage parental involvement	yes	24	14	3.13
	sometimes/ no	76	86	
RQ10. Have you taken personal initiative regarding the CSK framework	yes	13	14	.03
	sometimes/ no	82	86	

Table 4.17 does not indicate significant differences in satisfaction level regarding parents' age.

**Table 4.18 Mean, SDs' and MANOVA Results in Satisfaction Level, According to Parents' Origin.**

		Origin		$F$ (df = 1,154)
		Israel n=108	immigrants n=48	
Inclusion in centre activities	<u>M</u>	-.08	.19	2.53
	<u>SD</u>	.97	1.05	
Parents' familiarity	<u>M</u>	.06	-.13	1.21
	<u>SD</u>	.94	1.12	
Information	<u>M</u>	.01	-.03	.07
	<u>SD</u>	.98	1.05	

Wilks Lambda = .976  $MF_{(3,152)} = 1.27$ , NS;



Table 4.18 Frequency distribution percent of parents' attitudes according to origin, and Chi square results.

Dependent variable		Israel	Origin immigrants	$\chi^2$
RQ1. In general I am satisfied with the CSK clubs my child/ren participate in	yes	91	87	.69
	sometimes/no	9	13	
RQ6. Does your child express satisfaction with his/her studies in the club	yes	82	66	6.75**
	sometimes/no	18	34	
RQ7. Have you shown involvement in choosing the clubs for your children	yes	63	65	.10
	sometimes/no	37	35	
RQ2. Does the CSK programme encourage parental involvement	yes	22	18	.40
	sometimes/no	78	82	
RQ10. Have you taken personal initiative regarding the CSK framework	yes	11	18	1.44
	sometimes/no	89	82	

\*\*  $p < .01$

Table 4.18 indicates significant differences between immigrant and non-immigrant parents, with respect to child's satisfaction with his/her studies. Israeli born children expressed higher level of satisfaction from the programme than non Israeli children.

**Table 4.19 Mean, SDs' and MANOVA Results in Satisfaction Level, According to Parents' Education.**

Dependent variable	Statistical measure	Education		$F$ ( $df = 1,153$ )
		elementary & high school I n=62	higher education n=93	
Inclusion in centre activities	<u>M</u>	.12	-.07	1.37
	<u>SD</u>	1.00	1.00	
Parents' familiarity	<u>M</u>	.27	-.18	7.93**
	<u>SD</u>	.80	1.09	
Information	<u>M</u>	.18	-.10	3.01
	<u>SD</u>	.96	1.00	

*Wilks Lambda* = .922, *MF* (3,151) = 4.24,  $p < .01$ ;

\*\*  $p < .01$

Table 4.19 shows that less educated parents are more familiar with the programme than high educated parents.

Table 4.19 Frequency distribution percent of parents' attitudes according to education, and Chi square results.

Dependent variable		Education		$\chi^2$
		elementary & high school I	higher education	
RQ1. In general I am satisfied with the CSK clubs my child/ren participate in	yes	93	87	1.74
	sometimes/ no	7	13	
RQ6. Does your child express satisfaction with his/her studies in the club	yes	77	78	.00
	sometimes/ no	23	22	
RQ7. Have you shown involvement in choosing the clubs for your children	yes	68	59	1.52
	sometimes/ no	32	41	
RQ2. Does the CSK programme encourage parental involvement	yes	30	15	6.7*
	sometimes/ no	70	85	
RQ10. Have you taken personal initiative regarding the CSK framework	yes	17	11	1.42
	sometimes/ no	83	89	

\*  $p < .05$

It was found that parents who have lower education perceive the CSK programme as encouraging more involvement than parents with higher education.



**Table 4.20 Mean, SDs' and MANOVA Results in Satisfaction Level, According to Child' Location**

Dependent variable	Statistical measure	Child' location			F (df = 2, 149)
		firstborn n=64	young child n=40	middle n=48	
Inclusion in centre activities	<u>M</u>	.05	-.02	-.04	.11
	<u>SD</u>	1.08	.91	.98	
Parents' familiarity	<u>M</u>	-.13	.12	.01	.76
	<u>SD</u>	1.00	.94	1.05	
Information	<u>M</u>	-.02	-.09	.09	.35
	<u>SD</u>	1.05	.87	1.07	

*Wilks Lambda* = .984 , *MF* (6,204) = .403, NS;

Dependent variable		Child' location			$\chi^2$
		firstborn	young child	middle	
RQ1. In general I am satisfied with the CSK clubs my child/ren participate in	yes	89	91	88	.23
	sometimes/ no	11	9	12	
RQ6. Does your child express satisfaction with his/her studies in the club	yes	77	75	78	.22
	sometimes/ no	23	25	22	
RQ7. Have you shown involvement in choosing the clubs for your children	yes	66	64	58	1.03
	sometimes/ no	34	36	42	
RQ2. Does the CSK programme encourage parental involvement	yes	27	13	17	4.98
	sometimes/ no	73	87	83	
RQ10. Have you taken personal initiative regarding the CSK framework	yes	13	15	12	.26
	sometimes/ no	87	85	88	

Table 4.20 does not indicate significant differences in parents' satisfaction regarding child's location.

The issue of problem solving patterns in the programme was related to in a separate question. The parents were asked to whom they turn when they have a problem, and if the problem was solved satisfactorily. Results show that 87% of the parents turn to the centre manager; only 6% turn to the Welfare Manager and 6% to the course teacher. As for parents' satisfaction with problem solving, most parents (89%) reported that their problem was dealt with satisfactorily.

In addition parents were asked if they thought parents should be involved in the programme, and in what areas involvement should exist. The results show that 88% of the parents believe that parents should be involved in the programme. Most parents (33%) believe that parents should be given information about the activities, courses and topics of the programme. 31% of the parents believe that parents should participate in the activities (events, open day, etc.). 11% think that parents should visit the clubs, and 11% feel that parents should be involved in choosing the courses. Table 4.21 shows the parents' views on involvement.

**Table 4.21 Parents Preferred Areas of Involvement**

Issue	Percent	n
Values and society	3%	6
Violence	2%	5
Information	33%	65
Selection of courses	11%	21
Visit in classes	10%	21
Participation	31%	61
Parent-teacher relations	2%	4
Feedback	6%	12
Criticism	2%	4
<b>Sum of responses</b>	<b>100%</b>	<b>199</b>

The fifth research question dealt with the influence of various factors such as budget, geographical location, etc. on the choice of curriculum. The managers were given two open-ended questions in which they stated the problems they have encountered while planning the curriculum. In addition they were given a list of factors that may have influenced their choices. For each factor they stated if they considered it to be a problem in their planning process.



Table 4.22 shows the problematic factor list of the managers.

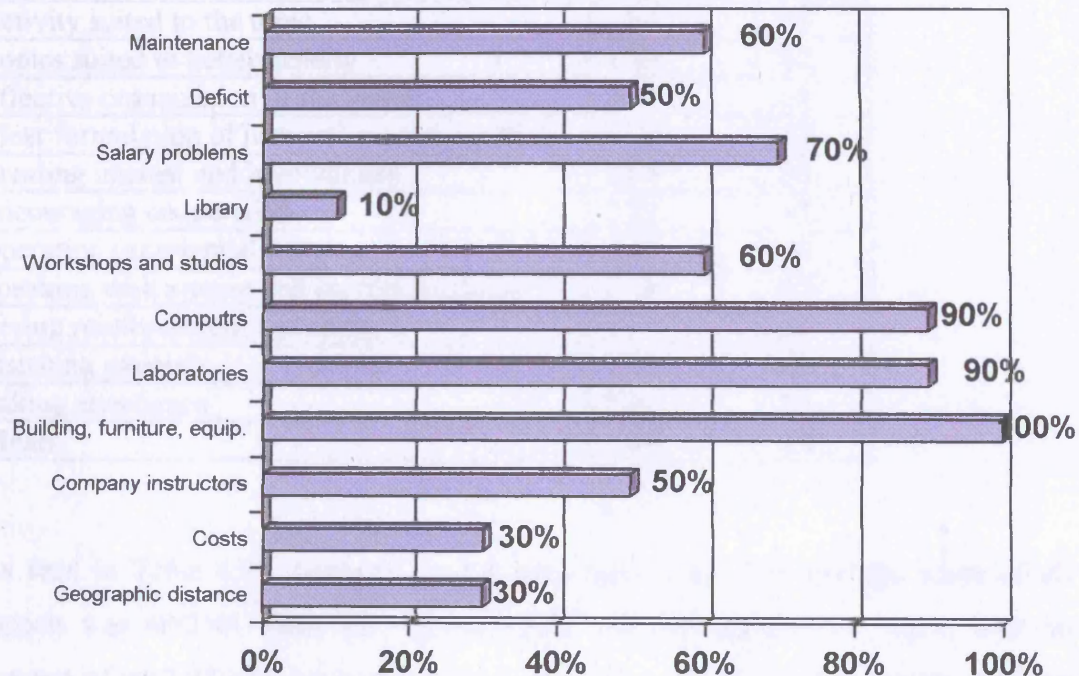
**Table 4.22 Managers' Problematic Factor List**

Problematic Factors	% of responses	n =10 <sub>(managers)</sub>
Geographic distance	5	3
Costs	5	3
Company instructors	8	5
Building, furniture, equipment	15	10
Laboratories	14	9
Computers	14	9
Workshops and studios	9	6
Library	2	1
Salary problems	11	7
Financial Deficit	8	5
Maintenance	9	6
<b>Sum of responses</b>	<b>100</b>	<b>64</b>

The results show that out of 64 responses received from the managers 15% related to buildings, furniture and equipment. All ten managers defined this factor as problematic in their curriculum planning. Other frequent factors were laboratories (14% of the responses related to this factor, 90% of the managers) and computers (14% of the responses related to this factor, 90% of the managers). Less frequent factors were salary problems (11% of the responses related to this definition, 70% of the managers), maintenance (9% of the responses related to this definition, 60% of the managers), and workshops and studios (9% of the responses related to this factor, 60% of the managers).

Graph 4.6 shows the percentage of managers that related to each factor.

**Graph 4.6 Percentage of Managers Relating to Each Factor**



#### **4.5 Observation Findings**

In addition to the questionnaires that were given to the participants and managers of the programme, an analysis of the teaching process was performed. The analysis was conducted through a series of observations that related to four topics: teachers, students, relation, and conditions. The observer, while visiting the classes, answered a series of 1 to 3 scale questions that related to each of these topics. For each question “3” related to a positive reaction and “1” related to a negative reaction.

The teachers’ section contained 13 questions that related to different aspects of teaching. In each question an average of the observed responses was computed. Table 4.23 shows the observed scores for the teachers.



**Table 4.23 Teachers' Scores**

	Mean	S.D
Command of the topic	2.92	.26
Clarifying objectives	2.14	.77
Activity suited to the topic	2.71	.61
Topics suited to heterogeneity	1.30	.67
Effective organization of the lesson	2.07	.64
Clear formulation of instructions and questions	2.78	.42
Creating interest and involvement	2.64	.63
Encouraging cooperation	2.23	.92
Operating experiential learning	2.64	.49
Speaking with precise and correct language	2.78	.57
Giving reinforcement and critique	2.35	.63
Listening patiently	2.78	.42
Taking attendance	2.50	.85
Mean	2.44	.60

As seen in Table 4.23, teachers' scores were quite high. The average score of all aspects was  $m=2.44$  while the highest aspect was *command of the topic*, with an average of  $m=2.92$ , and the lowest aspect was *topics suited to heterogeneity*, with an average of  $m=1.30$ .

The students' section contained seven questions that related to different aspects of student participation and initiative. In each question an average of the observed responses was computed.

Table 4.24 shows the observed scores for students.

**Table 4.24 Students' Scores**

	Mean	S.D
Educational intent	2.42	.75
Cooperation in planning the course of the lesson	2.60	.54
Participation in the debate	2.28	.82
Performing experiments	2.81	.40
Recording reports	2.40	.89
Helping and being helped by friends	1.85	.66
Working independently or in groups	2.75	.46
Mean	2.44	.64

As seen in Table 4.24, student scores were quite high. The average score of all aspects was  $m=2.44$ ; this resembles the teachers' average score. The highest aspect was *performing experiments* with an average of  $m=2.81$ , and the lowest aspect was *helping and being helped by friends* with an average of  $m=1.85$ .

The relations section contained six questions that related to different aspects of relations between the teacher and the students. In each question an average of the observant responses was computed. Table 4.25 shows observed scores for relations.

**Table 4.25 Relations Scores**

	Mean	S.D
Material interests the students	2.71	.46
Examination of students' understanding	2.50	.65
Relating to students' problems	2.28	.61
Sensitivity to students' needs	2.42	.75
Informal atmosphere	2.71	.61
No situations of silence created	3	.00
<b>Mean</b>	<b>2.60</b>	<b>.51</b>

As seen in Table 4.25, relations scores were quite high. The average score of all aspects was  $m=2.60$  which is higher than previous scores. The highest aspect was *no situations of silence created* with an average of  $m=3$ , and the lowest aspect was *relating to students' problems* with an average of  $m=2.28$ .

The conditions section contained seven questions that related to different aspects of environmental and physical conditions. In each question an average of the observed responses was computed.

Table 4.26 shows observed scores for conditions.



**Table 4.26 Condition Scores**

	Mean	S.D
The significance of organizing the environment	3	.00
Lack of place to store equipment	2.5	.57
Existence of helpers	1.85	.94
Large enough quantity of material	2.42	.85
Illustrative means	1.76	.83
Equipped laboratories	2.75	.46
Cleanliness of the class	2.71	.61
Mean	2.42	.60

As seen in Table 4.26, environmental conditions scores were quite high. The average score of all aspects was  $m=2.42$ . Disregarding the significance of *organizing the environment*, since this aspect does not relate to any specific factor of the environment but to the meaning of the overall environment, the highest aspect was *equipped laboratories* with an average of  $m=2.75$ , and the lowest aspect was the existence of *illustrative means* with an average of  $m=1.76$ .

## **Part B – Qualitative Findings**

In the second part of this chapter I will present the qualitative findings stemming from the open-ended questions and personal responses by the interviewees to the outlooks, attitudes, perceptions, opinions, criticisms and recommendations according to the following topics:

### **4.6 Policies**

On the macro level, policies are determined according to the definitions of the Ministry of Education (as described in the literature review), its representatives are the regional educational welfare manager, and the supervisor of the project; on the micro level, all decisions are made by the centre managers in coordination with the local welfare manager.

#### **4.6.1 The objectives of the programme**

The objectives of the project as expressed in attitudes taken by stakeholders (research question 1) are as follows: the interviews that took place with the regional educational welfare manager, (Appendix 1) show that the objectives of the enrichment project are divided into two:

- a. the official objective, defined as promoting those with high abilities, the second 10-15 percent of elementary school age students, and increasing their rate in the higher levels of education;
- b. the operative objective of the programme, enrichment in topics that are not learned in school and a challenging meeting of peers that enriches the gifted students both scholastically and socially.

The rationale of the objectives, as expressed in the educational literature, is enrichment that provides proficiencies, knowledge, curiosity, and increased chances for the gifted students to cope with school tasks and the tasks of integration in society. The supervisor (Appendix 2) noted that she was a partner in the regional committee that determined aims, objectives, target population and organizational aspects. The objectives defined included the development of creative thought, expanding horizons and encouraging curiosity to investigate.

The local educational welfare manager (Appendix 3) cited an objective as expanding the horizons of the gifted in fields that are not studied in regular schools. (Processing of data relative to objectives from the centre managers and the teachers was performed in the first part of this chapter).

#### **4.6.2 The target population**

Information regarding the target population of the programme was taken from:

- 1) Documents of the Ministry of Education;
- 2) The educational welfare department – "Shahar" department;
- 3) Questions in the interviews with the regional educational welfare manager, the regional supervisor, and the local educational welfare managers.

This information indicates that the criteria for choosing students for the project used to include extraneous tests that, according to the regional educational welfare manager, were cancelled under instructions from the senior scientist of the Ministry of Education. These tests were exchanged for a system of recommendations because of the dangers of labelling the students as early as the third grade, and also the possibility that gifted students who did not pass the test were rejected.

Today use is made of recommendations of principals, class tutors, teachers and school consultants in elementary school; these are accompanied by a series of criteria of knowledge and achievements, personal criteria and behavioural criteria of the student, including motivation, curiosity, desire and perseverance, defined by the regional supervisor (Appendix 10). Interviews with managers and teachers of the clubs (Appendices 4 and 6) show that they are not involved in the choice process, unlike the schools, which have sole command over the recommendation of students for the project. The regional supervisor has the sole authority to determine the final list of students referred to the project.

## **4.7 Planning the Project in the Community**

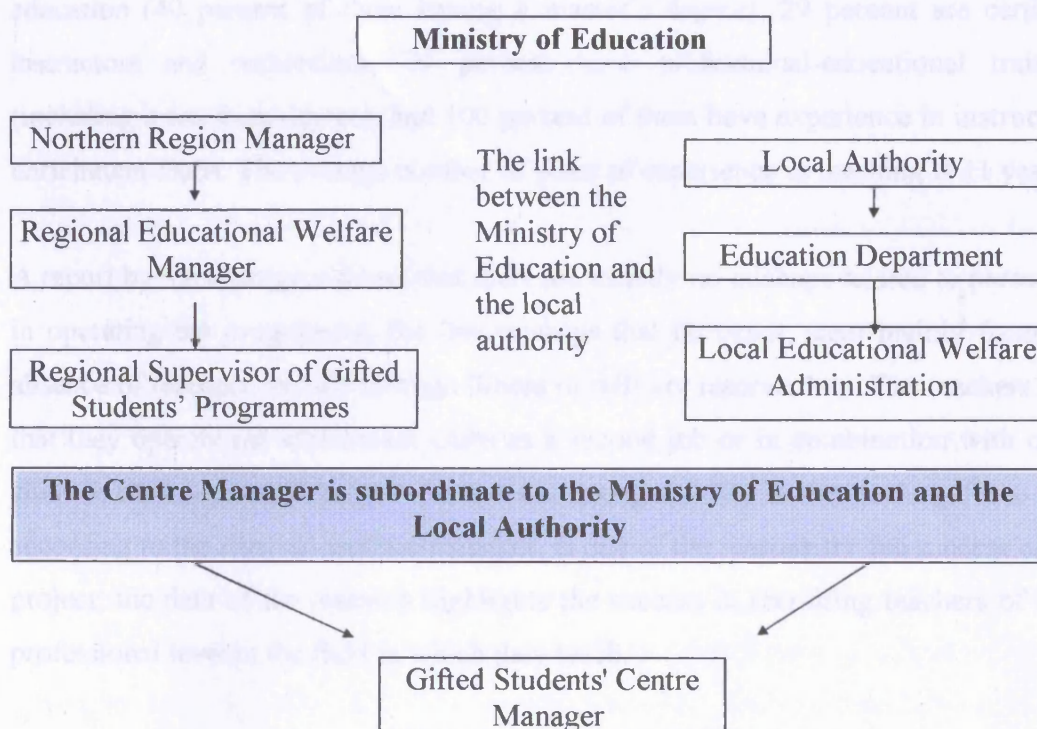
### **4.7.1 Choosing centre managers**

The choice of centre manager is made through a local tender that is published. The conditions of the tender are education, field of education and experience in management and organization (sometimes there is an added condition requiring residence in the community). The candidates are examined in a personal interview with the acceptance committee composed of the regional supervisor as a representative of the Ministry of Education, the educational welfare manager as a representative of the local educational authority, and the manager of the personnel department responsible for the administrative-organizational side of employing the chosen candidate. Authority for the decision is given to the supervisor.

From the profile of centre managers it is possible to learn that there is equal division between genders with 50 percent being male and 50 percent being female, all having an academic degree, most with professional experience. The scope of their employment is a direct result of the size of the centre; large centres are 50 percent

posts and small centres are 33 percent posts. According to the regional educational welfare manager, some of the success of the project is related to the correct choice of centre managers. The centre manager is the link between the educational authorities in the region and the local educational authorities (see figure 4.1 for the organizational structure of the authorities involved in the project).

**Figure 4.1 Organizational structure of the authorities involved in the project**



## **4.8 Planning and Organizational Considerations in the Centre**

### **4.8.1 Choice of teachers**

The Ministry of Education, whose representative are the regional educational welfare manager and the supervisor, have formed a policy to determine criteria for the choice of teachers; these criteria include; experts in their fields, original, unique, being a source of inspiration for the gifted students, having good interpersonal communication, unconventional thought, knowing the traits of the talented and their special needs, and able to let the gifted students to fulfil their potential. The local welfare managers and centre managers are responsible for choosing the teaching staff



at the local level. Many teachers work in a number of centres as a result of recommendations from the supervisor.

The interviews show that choice of teachers is made through a personal interview and an introductory conversation (following recommendation). The centre managers stated that there is full coordination between professional training and the club that the teacher runs. 13 teachers (8 female and 5 male) answered the questionnaires (Appendix 5) and the answers show that 71 percent of the teachers have academic education (40 percent of them having a master's degree); 29 percent are certified instructors and technicians, 79 percent have professional-educational training (including a teaching degree), and 100 percent of them have experience in instructing enrichment clubs. The average number of years of experience in teaching is 11 years.

A report by the managers shows that there are usually no mishaps related to personnel in operating the programme; the few mishaps that do occur, stem mainly from the absence of teachers, mainly through illness or military reserve duty. The teachers said that they operate the enrichment clubs as a second job or in combination with other clubs in CSK centres. In most cases there is strong stability in the teaching force that, according to the regional welfare manager, is one of the reasons for the success of the project; the data of the research highlights the success in recruiting teachers of high professional level in the field in which they teach.

**The choice of clubs** is related to the number of stakeholders according to a hierarchical list: recommendations of the regional supervisor; opinions of the local educational welfare managers, and the desires of the centre managers. Considerations of the local educational welfare managers and centre managers include: attractive and original topics, continuity of topics studied, preferred topics (from the students' and parents' feedback), availability of teachers and instructors, and budgetary considerations.

This shows that initiative for choosing the clubs includes the educational authorities on the one side, and the students and parents - the clients of the project - on the other side.

**The issue of organizing the groups** is the sole responsibility of the centre managers taking into account personal and local considerations. The central criterion guiding them is age (in order to avoid extreme heterogeneity), this was validated by the teachers, who reported that the groups were of one age group, or at the most two, and were balanced regarding gender. The additional criteria are the preferences and choices of the students. The size of the group (between 12-20 participants) is also connected to the topic of the club or the character of the activity (workshop - laboratory) and the existing equipment in the centre (such as the number of computer stations).

#### **4.9 Tracking and Operation**

On a regional level the centre managers must report the beginning of the activity, the day of activity, the number of students participating in the project, a list of clubs and division into groups, at the beginning of the year; sometimes there is a requirement for an enrichment programme, recommendations for equipment, or a request for aid from the CSK organization budget. At the end of the year the managers must present final balance sheets, including income and expenses over the course of the year.

On a community level, at the beginning of the year of activity the educational welfare manager receives the budgetary framework for operating the project from the local educational authority. 50 percent is received from the Ministry of Education and is earmarked for the salaries of the centre manager, teachers and auxiliary staff (secretary, maintenance, lab workers), and 50 percent is fees paid by parents, determined according to the instruction circular received from the regional supervisor; this is mainly earmarked for ongoing costs: computer programmes, materials, and enrichment activities such as tours and lectures.

Towards the end of the year, the centre manager is invited to a community project meeting, headed by the municipality chairperson, in order to survey the activities of the project and convince those present that the project is vital to the promotion of gifted students. Its success, (an average rating of 8.55 for success and an average rating of 8.81 for community attitude toward the project taken on a scale of 1-10,) is proof that the project should be continued. Over the course of the meeting the heads of the community decide what projects will continue to receive budgeting (proof of



this can be seen in the interview with the educational welfare manager who stated that the Ministry of Education monies are transferred to the authorities and they may divide it according to the needs of the community).

On a project level, the centre manager transmits a report to the educational welfare manager regarding the number of students registered, the state of payments, the topics of the clubs that have been chosen and the number of groups that will be operating. Over the course of the year a monthly report is transmitted in order to arrange payment of the teachers' salaries. On a centre level, the teachers give the centre manager reports in different fields such as; students' attendance and a summary of the meetings, changes in the curriculum, problems in students' function, tardiness, absences, disciplinary problems and status of equipment.

An attempt to clarify to what degree there is a connection between the different bodies that take part in operating the clubs on different levels, provided the following information:

The regional supervisor has a strong tie with the centre managers, compared to a weak tie between her and the educational welfare manager and the teachers. The tie with the elementary school principals exists only through the list of recommended students.

The two educational welfare managers interviewed (Appendix 3) reported a strong tie with the centre managers and a weak connection with the supervision. Ties with the teachers are mainly related to salary, and ties with school principals in the community are only at the beginning or end of the year, regarding the lists of recommended students. With parents the ties are weak (in initiated meetings) although sometimes parents come to them to solve problems related to payment for the clubs.

One hundred percent of the centre managers (Appendix 4) stated that there is a strong tie between them and the supervisor, the local welfare manager, centre teachers and the students, and a weak tie between them and the school principals, consultants and parents (usually according to need).

One hundred percent of the teachers in the centres (Appendix 5) stated a strong tie with the centre managers. 93 percent of the teachers in the centres stated that they do

not have any tie with the supervisor, 71 percent of them stated that they do not have any tie with the local welfare manager. One hundred percent of the teachers in the centres stated that they do not have any tie with the educational system of the elementary schools, and 100 percent of them stated that they have a close relationship with students, versus a weak tie with their parents. One hundred percent of the teachers reported a need for professional consultation, 40 percent reported that they turned to colleagues and 60 percent of them reported turning to the centre managers.

Regarding equipment and material, 92 percent of the teachers of the clubs turned to the centre managers, the balance dealt personally with equipment or was aided by their laboratory assistant.

#### **4.10 Enrichment Programmes**

##### **4.10.1 Content**

The guidelines for creating curricula are suited to the way of thinking and perception of the gifted students. The principles for planning the topics are published by the Ministry of Education and arise from the information received in the interviews with the regional educational welfare manager (Appendix 1) and the regional supervisor (Appendix 2). They include; relating to the objectives of cultivation, maintaining a balance between science and art, emphasizing interdisciplinary aspects, integrating complex and abstract knowledge and thought, developing skills in investigation and discovery, problem solving, extracting new knowledge, recognition of advanced technology, developing the personal aspect - motivation, curiosity and creativity - and legitimizing excellence, daring and originality. The instructions are transmitted to the community educational welfare managers and the centre manager.

##### **4.10.2 Curricula**

Some of the curricula are authorized on a regional level and are recommended by the regional supervisor. On a local level, the teachers are autonomous in consolidating and preparing the curricula, but the centre manager gives authorization for operation. From the teachers' questionnaires (Appendix 5) it is possible to conclude that all of the curricula of the clubs were pre-defined and changed to differing degrees during their operation, sometimes under the advice of the centre manager.

From the interviews with the teachers (Appendix 6) the criteria used for consolidating the curricula were clarified as: basic concepts and topics; process, which includes expansion of knowledge, learning skills, providing tools and developing thought; teaching methods, especially experiments, illustrations, observations and activities performed by the students; products, preparing projects, creating computer sites, solving problems and drawing conclusions. In questions 5-10 of the interview, teachers were asked about the principles for organizing the material, their responses relate to the following; principles, fields of knowledge, phenomena, areas of life, interdisciplinary topics, and modular topics that are constructed flexibly. Preparing the materials from simple to complex, from material to abstract. Coordinating topics to the level of the able student and the framework of the centre, and relating to the emotional-creative field.

In summary, the information and data received from the teachers show that there is no regional or local level of instructions for the curricular planners - the teachers - regarding an obligatory presentation of the curricula.

#### **4.11 Operation of the Programme**

From an analysis of the main topics that were provided by the teachers it is possible to learn that, in all of the clubs, changes were made and the topics were varied. Assignments were given only during the course of the lesson, and a small percentage provided a recommended assignment as homework. Regarding teaching methods, a number of parameters were examined:

- \* The method of presenting the material included; explanation, illustration, story, experiment, observation, presentation, sampling, songs, newspaper clippings, films and tours;
- \* The didactic mechanism included; questions, brainstorming, creating contexts, simulation, summary, debate, role playing, examples, terms, concepts, principles, theoretical background and headings;
- \* Teaching methods included: investigation, discovery, experiment, independent work, teamwork and exercises.

Each topic included a different distribution of time according to the character of the topic and its transmission by the teacher/instructor. For example:

- \* Topic of the club: experiments in chemistry - 20% lecture and illustration; 20% debate; and 60% work in groups.
- \* Topic of the club: art - 20% lectures and illustration; 30% debate; and 50% work in groups.
- \* Topic of the club: logic - 10% lecture and illustration; 20-30% debate; 20% individual work; and 30-40% work in groups.
- \* Topic of the club: English - 20% lectures and illustration; 25% debate; 5% examination of previous knowledge; 40% individual work; 10% work in groups.

Regarding the learning materials, the teachers' questionnaires and interviews (Appendix 5 and 6) show that most of the clubs have textbooks, guides for teachers and work kits for the students. In scientific clubs using laboratories and in art and creativity clubs the costs of materials are high.

Regarding attendance at lessons, questions were asked of the centre managers and teachers of the clubs. The overall picture shows high attendance, reflecting a great deal of interest in what goes on in the club among the students. This is in keeping with the data received from the students' questionnaires, regarding their participation and enjoyment of the project.

The supervisor, the educational welfare manager and the centre managers were all asked about dropping out, their answers were identical. There are a low percentage of dropouts, the main reason for dropping out is a lack of interest in the club that was chosen (at a stage at which one cannot change topics).

Regarding reporting performance of the programme, most of the teachers/instructors presented reports about coverage of the programme's material. The schedule differs from centre to centre (every week, once a month, once a year), this proves the differences in the methods of managing the centres. For example, managers who visit lessons regularly do not ask for ongoing reports.

#### **4.12 The Place of the Teacher**

In their interviews and questionnaires (Appendices 5 and 6), all of the teachers agreed that the material must be suited to the level of the gifted students. Coordination is performed according to the personal construction of the teacher. For example, modular construction of the programme including different levels of difficulty, creating a process of developing thought and understanding, assignments and tasks. According to half the teachers it is possible to include the students in planning the programme, this is supported by responses of the teachers to initiatives from students. However, half of the teachers totally negate the issue.

All of the teachers claimed that their professional training suits the level of the material and the framework of the gifted students. Most of them even raised the need for advanced training on the issue, mainly on the level of innovations and updates. Not all of the teachers agreed on the issue of moral attitudes and personal outlooks. Some of them related to presenting a personal example and teaching values of respect and cooperative work among the group. Teachers in the field of art related to values on the level of beliefs, outlooks, directions of thought and aesthetic values. All of the teachers claimed that they achieved their objectives. Some of them determined this after every lesson and some as a result of feedback given by the students at the end of the club. Others determined this via the final products that were presented.

#### **4.13 The Place of the Student**

From interviews with the teachers (Appendix 6) it can be concluded that the study material is structured mainly for excellent, talented students from the upper percentile. (Two teachers cited that the material is suitable for any student interested in the topic and not necessarily for the gifted students.) Regarding questions from students, most of the teachers decided that they are based on curiosity and experience. Most of the questions were given direct answers guiding the students towards additional thought. The level of the question, and its complexity, has an impact on the methods used for problem-solving and drawing conclusions. Most of the teachers determined that they give the students varied assignments that require explanation, aid and intervention from the teacher.

#### **4.14 Evaluating the Enrichment Programme for the Gifted Students in the CSK Project**

A central question presented to all of the stakeholders dealt with evaluation of the project. In his interview the regional educational welfare manager, Mr. Abrahami (Appendix 1), stated that the positive feedback he receives every year from the regional supervisor, who organizes the feedback from the centre managers, and the ongoing reports from the community educational welfare departments, make it clear to him that the project succeeds in realizing and fulfilling the idea that it expresses. Testimony to this is the 19 years of its existence in the region till May 2002, and the requests coming from different settlements regarding joining the project. During the 1990s he performed an internal research study that included a sample of centres, this proved that the project is applied and operated according to the rationale and goals defined and for the target populations determined.

According to the regional supervisor (Appendix 2) the project is very successful, mainly in four fields: expanding horizons, motivation, self-confidence and social consolidation (expressed mainly in enrichment activities for all of the gifted students in the region such as summer camps).

The centre managers (Appendix 4) perform ongoing evaluation over the course of the year after applying the curriculum, transmitting feedback to teachers, students, and parents, and learning lessons for the coming year. Additional evaluation takes place via an outside body - the community steering committee - which gathers at the centre usually once a year, visits clubs and questions the teachers and students. At the end of the critique a meeting is held with the centre manager in which he is asked questions and the data appearing in his records is compared to that found in the field. This committee holds an additional role; in the summative meeting of the educational authorities its recommendation or rejection can modify or cancel the project in the community.

The centre managers were asked to evaluate the success of the programme in different fields which overlap the objectives of cultivating the gifted students; their responses are shown in Table 4.27.



**Table 4.27 Centre Managers' Evaluation of the Success of the CSK Project**

Objective of the activity	Very much	Much	Little
Expanding horizons	82%	18%	
Developing thought	73%	27%	
Creativity	64%	27%	9%
Self confidence	55%	27%	18%
Promotion of students	27%	55%	18%
Motivation	27%	64%	9%
Self image	55%	45%	
Social consolidation	9%	64%	27%

Most of the evaluations received from the centre managers testify that the goal of the activity was successfully achieved. Evaluations regarding the field of knowledge were highest, "expanding horizons", developing thought and creativity. Evaluations in the field of personal improvement were less positive (self-confidence, self-image, motivation and progress in studies). Evaluations in the social field regarding social consolidation within the centre were the lowest. The managers were asked to rate the success of the project on a scale of 1-10. Nine managers rated it with an average grade of 8.55.

85 percent of the club teachers cited the success of the clubs regarding fulfilling the personal potential of the gifted students (which is one of the central objectives that the project has set for itself), and some even gave details, regarding developing thinking, curiosity, creativity, achievement, excitement and enjoyment. All of the teachers cited that they achieved all of the objectives and aims set by the centre manager and themselves. Some cited this through tracking students, examining the project portfolio, the final project and feedback received.

The students (Appendix 7) were asked two open-ended questions in order to evaluate the project: What did they like? What did they not like? 468 students answered the first question (500 questionnaires were distributed, and 468 were returned), the positive answers were divided into a number of categories:

Activities and learning methods - 33%;

Level and content of the club - 33%;

The teacher - 15%;

Interest, enjoyment and society –12%;

The remainder were divided between implication on regular studies and the final product.

To the second question regarding negative issues in the project, 419 students (out of 468) answered, and this was also divided into a number of categories:

Total negation of the question - 53%;

Outside factors, including: lateness, absence and switching of teachers, transportation, lacking material, and schedules – 11%;

Function of the teacher – 8%;

The remainder, on levels between 7% - 2%, were divided between the following issues: level of understanding, topic of the club, activities, boredom, lack of interest, friends and disciplinary problems.

The students were asked to what degree the club satisfied their expectations (on a scale of 1 - 4) (research question 4). 455 students answered the question. Of them 42 percent answered that the programme was better and 42 percent that the programme was exactly what they expected. The remainder claimed that it was worse. No student answered that the programme was not good. The average of the answers was 3.28. The median was 3, and the mode was 4, with a standard deviation of 0.7.

On the questionnaire the students were asked to give the CSK project a final grade (on a scale of 1-10). 450 students answered the question: 50 percent rated the clubs with a 10; 4.9 percent rated the clubs 9.5 and 20 percent rated the clubs 9. According to the findings, 75 percent of the students rated the project very good and above. The average grade was 8.96, the mode was 10, the median was 10, and the standard deviation was 1.72. The students were asked to present the uniqueness of the programme - “pride in the unit” - The evaluations received were 55 percent ‘very successful’; 18 percent ‘successful’; and 18 percent ‘not very successful’.

As part of the evaluation the stakeholders were asked to relate problems encountered in the organizational, administrative and pedagogic systems of the project, and what

their recommendations were in order to improve the issue: The regional educational welfare manager (Appendix 1) stated a problem with the issue of locating students and also the recommendations given by the elementary school principals based on the criteria determined by the Ministry of Education, he felt that they are subjective and there is a fear of pressure being brought to bear by students' parents wishing to have their children join the clubs.

The regional supervisor (Appendix 2) stated that there are difficulties for the local authorities regarding budgets, teachers' salary and working conditions, problems with schools where the clubs take place during the afternoons, a difficult economic state in which parents have difficulty paying for the clubs, cancellation of clubs because of few students, availability of teachers and geographic distance. Her recommendations for improvement are divided into a number of fields: on an objective level; making CSK students into autonomous learners and equipping them to cope in the future with the various sources of information: on a centre level; tracking and coping with a changing dynamic world requiring new interdisciplinary topics: on a teacher and teaching level; expanding horizons, learning skills in information gathering, analysis, learning lessons, solving problems and drawing conclusions: on the student level; developing proficient leadership that can be integrated in the future into the decision-making system of society: on the assignment level; team work and preparing research projects.

The welfare managers of the communities (Appendix 3) who were interviewed cited problems related to security, budget, parental payments and cancellation of clubs. Regarding recommendations for improvement, two issues were raised: ongoing ties with school principals in order to increase their involvement in the project and publicizing and marketing the project.

The centre managers (Appendix 4) cited budgetary problems, availability of teachers, geographic distance, unskilled teachers from outside companies, disciplinary problems, a few problems with equipment, and competition from other programmes. Recommendations for improvement included: raising the threshold of acceptance of gifted students to the project and determining more rigid criteria, limiting the entrance of students with disciplinary problems, searching for exciting and experiential issues,

locating unique and original teachers, requiring additional budget for teachers' salaries, cancellation of external companies and increasing the enrichment activities outside of the centre (tours, exhibitions, presentations).

Eleven out of 13 teachers of the clubs who filled in the questionnaires (Appendix 5) related to the issue of the problems: 73 percent of them complained about small discipline problems and others complained about tardiness and concentration. The club teachers who were interviewed (Appendix 6) pointed to the fact that they are not trained to teach gifted students and expressed an interest in being integrated in professional training to expand their knowledge, update and exchange ideas with other teachers and colleagues. In most cases the centre managers and the teachers of the clubs stated that the problems raised did not have a major affect on the course of their activities, its results and success.

The students praised the clubs, the topics, the activities and the teaching methods. There is some criticism related to external difficulties and a little anger regarding the teachers' lack of ability to cope with the disciplinary problems. The overall impression from presenting the data/findings testifies to the success of the project.



## **Chapter 5**

### **Detailed Description of Findings**

#### **5.1 Introduction**

This evaluation research deals with managing educational curricula according to the perceptions of the stakeholders and is defined as a methodical description of educational curricula within the framework of the enrichment centre for the gifted students. Evaluation of the project connects three fields discussed in the literature review: 1) Curricula, the theoretical framework of the curricula in the enrichment centres was constructed in the present study according to Goodlad's (1979) and Silberstein (1984) models (see figure 2.1, section 2.2.3). 2) The teacher and the gifted/talented student, where the connection between them is 3) The concept of enrichment.

Within the process of the gathering of information and analysis of the findings, the contribution of the curricula to the gifted/talented student was examined for two causes: **a)** to evaluate the programmes within the centres and to recommend changes/improvements. **b)** to examine their suitability to satisfy the unique intellectual needs of the gifted/talented students.

As a structural framework, I chose to analyse the findings according to the five research questions presented in my thesis.

#### **5.2 What are the Goals of the Programme as Perceived by the Stakeholders?**

The impetus to investigate the CSK centre project stemmed from my curiosity regarding the reasons for the survival of this educational project for 19 years. Many articles and studies have been written concerning survival of organizations. Survival reflects the organization's ability to cope successfully with risks that threaten its existence as an entity. I examined the life cycle of the project using three approaches: the objective approach, the beneficiary approach and the value approach.

### 5.2.1 The objective approach

This answers the first research question, which examines the objectives according to the perceptions of the stakeholders:

1. The general objectives are determined by consultation with people in academia (the Unit for Educational Curricula for the Gifted in the Ministry of Education) and according to Goodlad's model (1966), relate to the political-national level. This level was not examined in my study.
2. The objectives of enrichment programmes on a regional level were expressed in interviews with the regional educational welfare manager and the regional supervisor. The educational organization, the "Shahar" Department, and the person who formed the idea, the Regional educational welfare Manager, Mr. Zvi Abrahami, publicly and officially stated the reasons for the establishment of the CSK centre project, together with the principles according to which it would operate over the course of its existence. This statement relates to the purpose or the mission, and includes the objectives that the organization attempts to realise in the framework of the centres. According to my findings, survival at this stage is related to defining action objectives according to the needs of the times. For example, the topics of the clubs change from year to year in all of the centres to suit them with the reality. This can be illustrated through the topic of computers, which began with operating programmes, and today deals with construction of internet sites, and their use to expand and create knowledge.
3. The unique objectives on a local level are those of centre managers and teachers. In the case of teachers who teach in the centres, the objectives were expressed on the club level, and are divided into two fields:
  - a. Those that emphasize the unique objectives, which are called teaching goals by Eisner (1967), for changing the behaviour of the students and defining the product/achievements through which the change will occur. Examples, according to the findings, are: a) expanding horizons, b) developing curiosity and creativity, c) encouraging critical thought, d) self-expression and e) cultivation of the gifted student as an independent student. These characterize enrichment programmes within the centres as unique programmes. A major implication of such objectives is that gifted students need to be allowed advanced study above and beyond the regular curriculum.



- b. Those who related to expressive goals, of the student who copes with a problem and attempts, together with the teacher, to find a solution.

Both types of objectives relate to mutual activities which include teachers who create the background and situations that will encourage the desired responses among the students who experience learning through the study material which interests them (unlike the regular educational curricula which are obligatory).

For the stakeholders who are partners in the project, knowing the objectives provides them with a feeling of mission and identification, this reinforces their motivation and encourages them to make the stated/official objectives into operative/operational objectives. The operational objectives are dynamic by nature and they can be defined in terms of an action plan in the field. Their role is to ensure the regular activity of the project in accordance with the conditions within the community and the needs of the gifted/talented students, while evaluating their degree of achievement.

***Objectives of the project in the eyes of the Stakeholders:***

***Regional educational welfare manager; Local educational welfare managers; Supervisor; Centre managers; Teachers.***

1. **The originator of the project**, the regional educational welfare manager of the Ministry of Education, Mr. Zvi Abrahami, is the person who thought of the idea of the centres in the communities out of a need to promote the gifted/talented students in the region who came from a weak socio-economic background. In an interview that took place with him (Appendix 1, question 4) he explained that in the process of constructing the framework, four stated objectives were determined (chapter 1, page 19), these do not exist in the formal framework of regular schools.
2. **The supervisor** responsible for the project is the connecting link between the stated objectives and the objectives as they are realised in the field. The model of policy levels in decision-making appears in Chapter 2, Figure 2.5. When I examined the findings, it became apparent that the decisions in general principles are translated by the supervisor into different foci and move down into details through circulars to the centre managers. She details the objectives and transposes them from the dimension

of statements to the dimension of principles of performance topics, subjects and teaching methods, (Appendix 2, question D). Some examples of the objectives given by the supervisor are shown in Table 5.1.

**Table 5.1 Examples of Objectives Given by the Supervisor**

Objectives	Examples
Coordinating the enrichment programmes to the skills and needs of the gifted students Developing them at their rate Encouraging potential of the gifted students Cultivating curiosity and thought processes.	The process of designing a model of a product - from presentation of the idea to presentation of the product - a system of traffic signals, bells and lights.
Expanding horizons – according to Eyre and Marjoram, (1990) it means experimenting with new ideas and materials and adding to the formal knowledge studies in the regular framework. In Bloom's Taxonomy this is a concept related to the level of synthesis, which the gifted students may reach.	The Communications Club relates to the overall term: social, scientific and technological aspects.
Creative solutions.	The experiments in the Science Clubs - creating an active volcano leading to the gifted examining the causes and phenomena while raising ideas for coping with the problem.
Making the student into a creator of knowledge.	The Robotics Clubs - constructing computerized control systems including flow charts, computer programmes and construction of elements and electronic sensors.

**3. Local educational welfare managers** - Two local educational welfare managers were interviewed and, according to their responses (Appendix 3, question 2), one can discern different perceptions. Welfare managers who come from the field of education state the objectives of the project from an identical viewpoint to that of the supervisor. Welfare managers who are appointed by the municipality and who come from the field of organization, administration or are politically appointed, tend to use the definition of the objectives on a statement/official level identical to that of the regional educational welfare manager. For example, enrichment, fields of interest that do not overlap topics learned in school, and combinations of clubs



in the fields of science and art. There are also those who define unique objectives for the needs of the students in the community. For example, the centre in Beit She'an, chose the topic of archaeology as one of the clubs because there is an archaeological dig nearby. The centre in Ma'alot chose the topic of computers because of the development of a communications project among the residents.

4. **Centre managers** are pedagogically subordinate to the supervisor and organizationally-administratively subordinate to the local welfare manager of the community (see Figure 4.1). Centre managers who receive the definition of the objectives of the project from the supervisor relate to them as official stated objectives that must be additionally detailed in order to be realised in the field. In the interview with **the centre managers** (Appendix 4), question 13 referred to the objectives, and the responses detailed ten criteria expressed in Table 4.1 and Graph 4.1 (chapter 4 pages 188,189). These criteria relating to enrichment programmes are discussed in detail in section 2.6.4.

In question 35 the managers determined objectives such as self-confidence and self-image, and creating social consolidation, fields that are recognized in the literature (section 2.5.6 ) as personality traits of the gifted/talented students, along with their need for a homogeneous group for fulfilling their potential.

**Hothouse managers**, in three centres there is a "hothouse" framework, over which there is a separate manager. (In the other centres this framework does not exist because of budgetary constraints). The first and second grade students are a "reserve" for the project to ensure continuity within the 1<sup>st</sup>- 6<sup>th</sup> grade framework. The hothouse managers saw the objectives of this project as general enrichment in science and art, with familiarity with a variety of topics (Appendix 4, question 13). They chose to use the concept of "tasting" different topics, familiarity with new fields and experience in them, while developing curiosity and encouraging the gifted student to continue in the project in coming years.

5. **The teachers**, 25 teachers who teach in the centres participated in the research, they were divided into two groups: 13 teachers filled in questionnaires and 12 teachers were interviewed. They were asked the same questions about their outlook regarding a definition of the project's objectives. The teachers, whose

position is between the centre managers and the students, must apply the stated objectives received from the centre managers in the clubs and make them into operational objectives in order to fulfil the gifted/talented students' potential. Because of their position, it is possible to see the great number of objectives, 18 criteria (see Table 4.5 and Graph 4.5, chapter 4, pages 195,196), expressed in the questionnaire, Part C questions 1, 2, and the interview, Part A, questions 1, 3 (Appendices 5 and 6).

Over the course of analysing the teachers' questionnaires and interviews, differences were found in defining the objectives and the importance of their positions. It is impossible to explain this difference, only to hypothesize that the differences stem from the fact that two different research tools were used: interview and questionnaire.

The questionnaire (Appendix 5) was more focused and included 25 closed questions on formal-organizational issues such as: a) assignments, b) club problems, c) division of time, d) participation of students e) tracking and reporting and f) training and professional experience. On the other hand, the interview (Appendix 6) included many open questions relating to pedagogical issues such as: a) objectives, b) considerations, c) content, d) organization of material, e) study material, f) teaching methods, g) the place of the teacher and h) the place of the student.

The most obvious differences (see Chapter 4, pages 194,196) are shown in Table 5.2.

**Table 5.2 The Differences Between the Interview and the Questionnaire in Defining the Objectives**

Defining the Objectives	Interview (Graph 4.5)	Questionnaire (Graph 4.4)
1) Curiosity	100%	23%
2) Experiment and problem solving	92%	15%
3) Knowledge and concepts	83%	54%
4) Investigation and conclusions	83%	8%
5) Creative thought	83%	46%
6) Scientific thought	50%	8%
7) Team work	50%	23%
8) Exposure to phenomena discovery	42%	23%

An additional reason for this difference could be the emphases relating to the objectives (with a high percent) that appeared and were repeated in various questions in all parts of the interview (which included 60 questions), such as:

- 1) Question 3 - expanding knowledge
- 2) Question 5 - concepts, problems and skills
- 3) Question 10 - thought processes
- 4) Question 12 - knowledge and skills.
- 5) Question 20 - creativity and curiosity.
- 6) Questions 3-4 part C - principles, experimentation, investigation and discovery
- 7) Question 3 part E - curiosity, problem solving
- 8) Question 1 part F - phenomenon and skills
- 9) Question 4 part F - investigation, creativity, curiosity

It is possible that, because the concepts emphasised appeared in most of the interview questions, the teachers related to them a large number of times. This can explain the high percentages achieved in relation to these same objectives.

In summary, it can be concluded that since the establishment of the project and definition of its official objectives on the level of the Ministry of Education, Northern Region, the objectives have been conserved, even in their translation to operational detailed goals from the regional supervisor to the teacher, who presents them in the centre. An additional conclusion stemming from this summary relates to the objective approach, seeing conservation of the goals as part of the success of the project and its survival over the years.

### **5.2.2 The beneficiary approach**

This covered mutual relations between the organization and different groups of stakeholders who judge the degree of success of the organization in light of their expectations of it. Clarifying the concept of stakeholders is detailed in the section 2.4. It is reasonable that each group of stakeholders has typical expectations of their own and a series of criteria for evaluating success. The fact that all of the stakeholders related to the special needs of the gifted/talented, and support the enrichment programme for fulfilling their potential, is one of the factors behind the success of the project.

The regional educational welfare manager and the regional supervisor initiate the enrichment project, while the local welfare manager deals with the operation of the centre (Appendix 3, question 3, defining his position). In the early years of the project, monies were transferred from the Northern Region of the Ministry of Education, directly to the community for budgeting the centre. In recent years, the Educational Welfare Department has transferred a “budgetary basket” to the community, without determining its purpose or distribution. According to the regional educational welfare manager (Appendix 1, questions 3 and 11), it gives autonomy to the local manager. The Steering Committees in the communities, responsible for dividing the “budgetary pie”, allocate money to the CSK project within the framework of educational projects, because they see the importance of the project which satisfies the needs of the gifted/talented students who are in the top 10-15% of the population.

The centre managers also see the aim of the project as encouraging excellence from the group of gifted/talented as future contributors to society. From the responses received from them one can learn about a quality group, called “unit pride”, as a high measure of success (Appendix 4, question 35).

In their interview (Appendix 6, part F, question 1) teachers relate to their expectation for the long term as "providing tools for experiences in the adult life".

The expectations of students and parents will be presented in the response to research question 4.

### **5.2.3 The value approach**

Each one of the stakeholders carries a system of value expectations, and each one of them has different measures for testing and evaluating the achievements of the organization. Success/failure are measured by the degree of stability, reliability, innovation, and function in a changing environment or according to the degree of importance attributed to cultivating the individuals, the satisfaction of the participants, and performance of assignments and receipt of products.



How do the stakeholders of this study explain the degree of success of the project?

According to **the regional educational welfare manager**, without people in the “field” to realise the ideas and the statements, there is no chance for the project to succeed and survive for 19 years (this includes feedback received from the organizers and the decisions of the steering committees in the communities to continue the project each year). He claims that successful choice of centre managers (in the hands of the supervisor) and expert teachers in their fields create stability in the system (Appendix 1, question 15).

**The regional supervisor**, who is directly responsible for the project, explains the success of the project pointing to evidence as follows:

- 1) The numerical statistical datum that 98% of the students who begin the project follow through to the end. 2% drop out at the beginning or the middle of the project. (The conclusion to be drawn is that usually the students continue in the framework for a number of years.) (Question A.)
- 2) On the level of change and updating, towards the beginning of the school year she ensures that the management staffs are given new programmes to choose from. This process creates a dynamic situation, updating and continual change that satisfies the real needs and is a challenge for the talented students (question H).
- 3) The CSK managers, who put her decisions into operation, have been given authority and they are autonomous in their operation of the centres. She sees their independence as a factor related to success (question E). The success of the project is seen as connected to consolidation and development of the management staff in the way that people are oriented, through staff meetings and training, in topics such as: the gifted and their needs, leadership, social abilities and effective communication. The managers maintain a continual relationship with the supervisor, including recommendations regarding enrichment programmes, choice of teachers, in-service training, summer camps and staff meetings. On the level of reporting, the supervisor receives the list of clubs opened from each centre at the start of the year, the division of groups, and the overall number of students in the centre. At the end of each year the managers provide the feedback results, from which the supervisor extracts the degree of success of the project.

**The local educational welfare managers** in the community see the numerical data of the students who reach the centres as the criteria of success, expressed in their decision to continue the project. (Sometimes the parental impressions are referred to, as they see the project as a prestigious framework.)

**The CSK managers**, the moral expectation system related to the measure of personality qualities, their management style is derived from beliefs, values and priorities. The optimal style also included personal growth, including: a) self-confidence, b) leadership, c) perseverance, d) motivation, e) innovation, f) flexibility and g) initiative. The autonomy given to the centre manager is related to the management of the centre and includes accepting and registering the recommended talented students, choice of teachers, consolidation of programmes, choice of enrichment activities and the composition of the groups.

In question 35, the managers were asked to indicate the indices of success. Their responses related to "achieving the goals". In question 36 they were asked to determine on a scale of 1-10, the degree to which the project had succeeded in the community. More than half defined the success of the centre with a rating of 9 (Appendix 4).

The level of communication between the managers is expressed in distribution of data between the centres regarding clubs, teachers, activities and unique enrichment programmes (Appendix 4, questions 12, 18, 22). For example, some teachers are employed in more than one centre, and some common enrichment activities take place in centres that are geographically close. The interpersonal communication allows new managers to receive support and help from veteran staff members. In an educational system in which people respect one another, are helpful and supportive and do not compete with one another, the chances for success and survival are high.

**The teachers** in the centres were asked two questions in the questionnaire regarding success (Part D, (Appendix 5). One concerned success in fulfilling the potential of gifted students (question 6), the second the success of the club (question 8). In answer to the first question, out of 13 responses, 11 answered positively and 2 teachers did not relate to the issue at all. This finding is line with Nevo, (1997) who suggested that

social fairness requires providing an equal opportunity to every individual to fulfil personal potential. Barbe and Renzulli (1975) also determined that it is necessary to cultivate the gifted student and to develop their potential. In answer to the second question, out of 13 answers, 12 detailed what they felt was successful in the club from different viewpoints and according to the content of the course that he/she is teaching as shown in Table 5.3.

**Table 5.3 The Criteria of Success in the Eyes of the Teachers**

<b>THE TEACHERS</b>	<b>SUCCESS OF THE CLUB</b>
The science teachers related to	The variety of experiments, scientific investigation and developing critical thought, data mentioned by Gallagher (1968), active and experiential learning based on critical thought including skills in investigation and creating new knowledge.
The aviation and art teachers related to	The personal final product, while the mathematical thought teachers examined the challenge accompanying the result and the achievement. This is reminiscent of the recommendations of Davis and Rimm (1985) regarding developing a product, which leads to a challenge.
The English and photography teachers related to	The objectives realised - an issue that is parallel to the responses of the centre managers.
The art teacher cited that success, according to him	The fact that there is no dropping out of the club over the course of the year. (A similar answer to that received from the Regional Supervisor and the local educational welfare manager regarding the index of success).
The mathematical thought and the electronics teacher related to	The content and the variety of topics. This finding agrees with Davis and Rimm (1985).
The logic teacher related to	The development of mathematical thought and to solving problems (Eyre and Marjoram, 1990).
The art teacher related to	The desire to acquire comprehensive knowledge.
The science teachers	Called it curiosity.
The art teachers added	The concept of creativity as detailed in Section 2.5.6.
The communication and English teachers related to	Topics, accompanied by games and songs, that create excitement and social cohesion,
The electronics teacher spoke about	Enrichment activities, which lead to satisfaction, enjoyment and pleasure, concepts mentioned by Marjoram (1988).

Teachers who participated in the interviews related to success in the field of topics, content, teaching and learning processes (Appendix 6). In part D, question 2, the teachers determined that the programme reaches its goals. Eight out of 12 teachers emphasized that they evaluate the teaching-learning process in every lesson. They tested the progress of the student through portfolio project and final products and saw the "immediate achievement" in the short term (question 1 Part F).

In summary, the first research question examined the objectives of the CSK centre programmes as perceived by the stakeholders: Ministry of Education, regional educational welfare manager, supervisor, local educational welfare managers, centre managers and teachers. The description of the findings examined the reasons, causes, and criteria behind success of this project who has survived for almost two decades while maintaining its objectives.

### **5.3 How do the Managers Make Their Decisions about the Content and the Teaching of the Enrichment Programme?**

The second research question relates to enrichment programmes for the gifted students. Beginning in 1973 the Ministry of Education accepted the responsibility of providing an appropriate response to students with unique needs (see sections 2.5.4 and 2.6).

The centre manager was asked in the interview (question 19, Appendix 4), what the criteria were that he used to examine a programme that is recommended to him/her? It appears that choice of programmes is made in several ways:

1. Recommendations from the supervisor.
2. Choice of a programme from a number of options before the school year begins, from a "market" that is organized by the supervisor to expose the managers to new, current, unique programmes that are challenging for talented students. (50% responded to 1 and 2.)
3. Recommendations of other centre managers who have had experience with a specific club. (40% responded in this way.)
4. Recommendations of the local educational welfare managers, who are familiar

with educational projects through their position.

5. All the managers come from the field of education and, over the years, have been exposed to different training projects. From these they can choose a unique topic that is not studied in the regular education system, turning it into an enrichment programme.
6. Teachers' recommendations from 'the teachers room' or from among teachers who teach clubs, who are familiar with the rationale and criteria, and develop additional topics. For example, in two centres a teacher who teaches a club in sciences developed a new course called "budding doctors".

Choice of programmes was presented in paragraphs 1-6 in descending order, by percentage of respondents. Paragraphs 4, 5 and 6 include managers in 10% of the answers.

There are three elements in the planning consideration of the centre manager:

**a)** the teacher **b)** his curricula and **c)** the gifted student.

### **5.3.1 The teacher**

#### *The role of the teacher in the centres*

According to Silberstein (1984) teaching the curriculum depends on the personality of the teacher and his knowledge. Usually the teacher, who teaches in enrichment programmes, is an expert on the study topic and has unique traits, as described in section 2.6.9. Figure 2.22 describes the ideal teacher for teaching the gifted/talented students. Silberstein determined three tracks for teachers (see Figure 2.6), only one of them was suited to the CSK Project and that was the autonomous teacher. This is the track which characterizes teachers in the enrichment centres.

Those teachers in the regular educational system, which makes the structure of the curricula and its topics obligatory, are mainly "covering material"; while in the enrichment centres it is the quality of the material, the place of the students in the centre, and the interpersonal meeting between the teacher and students which determine the difference. The desire to turn the gifted student into an autonomous student is described in section 2.5.5, the profile of the gifted student, as Type F by Rosmarin (1989). This curious student processes complex and abstract topics rapidly,

on higher levels of difficulty, which, according to Bloom (1956), are found in the stages of analysis, synthesis and evaluation. This can be an aim for all students but in the centres the groups are small in size (12-20) and, according to the teachers, they spare 40%–60 % from every lesson to guide the gifted student and create individual work (Part C, question 6, Appendix 5). It would be difficult to achieve this goal in the regular class.

In the process of teaching the gifted, the teachers find that there are many roles that define their task such as: a) the instructor, b) the fellow learner, c) the psychologist and d) the consultant. All teachers need these traits but, as Freeman (1995) said, the difference relates to perspectives. He called the teacher in the regular school "product-oriented" and the teacher in the centres "process-oriented".

#### *Procedures for choosing teachers*

In the interview with the centre managers - question 22, (Appendix 4), related to the method of choosing teachers/instructors. Most of the centre managers required recommendations and opinions. All of them point out that there is full adjustment between the teacher and his professional training and they selected the teachers after an interview.

Regarding characterization of the teachers, the centre managers used the following sentences: "With special skills", "See working with talented youth as a challenge", "An individual with special personality", "interesting and unique". They characterize the image of the teacher with a number of traits: a) Professionalism, b) originality, c) uniqueness and d) with unconventional thought.

Additional proof of the success of the choice of teachers for the centres can also be found in the student questionnaire (Appendix 7). Open question 29, in which they were asked to cite what they liked and enjoyed in the project, Sixty-eight students, 14.5% of all of the questionnaires gathered, noted the image of the teacher and his/her uniqueness. Details concerning the image and role of the teacher of gifted student groups can be found in section 2.6.9.

The issue of choosing teachers was also raised in the interview held with the regional



educational welfare manager, Mr. Zvi Abrahami (Appendix 1, question 8). He determined the following principles on the subject: a) experts in the field, b) original, c) having creative ability, d) dedicated to the topic, e) seeing teaching the gifted student as a challenge and f) not necessarily teachers from the educational system. The fact that they continue to teach in the centres is one of the criteria for the stability of the project and its success in the region. In communities where there is positive communication between the centre managers and the local educational welfare manager there is a common procedure of personal interview and choosing teachers. The local welfare manager was asked seven questions in the interview (Part 4, Appendix 3) about the choice of the teachers. His criteria were: a) professional certification, b) originality and c) uniqueness. In his opinion, in most cases there is coordination between the teacher's training and the group.

From the teachers' questionnaires (Appendix 5) it is possible to conclude that all of the teachers have professional training and an average of 11 years accumulated experience of teaching enrichment programmes. Most teachers have a bachelor's degree and some have a master's degree. The responses in the teachers' interviews (Appendix 6) reinforce these results (Part D, question 3).

#### *The teacher as an autonomous curricular developer*

According to Silberstein (1984), teachers who enjoy professional freedom show responsibility, initiative, motivation, excitement and commitment (details in section 2.4.2). The autonomous teacher who develops his/her curricula, including a) content, b) topics, c) assignments and d) study materials, gives practical meaning to teaching in the class. He is operating the curricula in the class according to the needs of the student population. In the teachers' questionnaires (Appendix 5, Part C, questions 3, 4), a number of teachers determined that the programme was prepared ahead of time but, because of its flexibility, it changes in the stages of operation. (The supervisor gave the same answer, question C (Appendix 2) "All clubs have a predefined curriculum").

When the teacher was asked how the programme is coordinated to the needs of the gifted student, a number of responses were received:

1. The programme was written for the level of the gifted student (on the teachers' questionnaires all teachers reported fulfilling the potential of the gifted student).
2. Topics with high levels of difficulty that are complex and abstract, expressed in what is taught to the gifted student in the centres.
3. The method of teaching the programme is constructed by the teacher to suit needs of the gifted student, through investigation, analysis of phenomena, experience and problem solving.

Examination of the curricula of the centres showed that most of the educational curricula presented to the centre managers before the 1990s were constructed from an accumulation of topics recorded as topic headings (similar to a “syllabus”), which proves that the managers did not examine the programmes according to indices, such as programme rationale, objectives, aims, content, educational activity, and division of time. From the middle 1990s, the teacher “developers” began to present programmes to the managers which included: a) general background, b) rationale, c) objectives, d) target population, e) number of sessions, f) the construction of the programme (topics), g) teaching methods, h) study materials, i) illustrative means (some teachers even included sample kits) and j) necessary equipment and costs, which were divided in two: salary and study materials. (This will be analysed later in the curriculum – section 5.3.2).

#### *Companies that develop educational curricula*

This is related to the development of educational curricula by external developers, described in section 2.4.2. The external developers have the appropriate resources of knowledge, expertise, time and money. The teachers are the “tool” for fulfilling the intents of the developers. They can interpret the curricula, but they must be loyal, and they are not allowed to change it. Connely (1972) recommended that the developers of the curricula describe how to apply the curricula under different teaching conditions from which the teachers-users choose what suits them. According to the findings, the teachers in the enrichment centres did not prefer this choice.

The main problem with such purchased programmes is the teachers chosen to teach the clubs in the centres. Usually they are students, trainees or instructors who have

been through a course of training on the topic, and do not feel any commitment to the club and do not create the teacher-student relationship that is so necessary for the teaching-learning process. The advantage of such programmes is the fact that the company ensures a substitute for a teacher who is absent.

The centre managers were asked about this issue in question 24 (Appendix 4). Five of them prefer to work with individual teachers. One of the managers said, "The teachers do not suit the level promised by the companies", and he decided not to continue their contract. However, two of them used the company's services and decided that the instructors did wonderful, committed and dedicated work. (Within the framework of this study, no questionnaires or interviews were administered among instructors who represent a certain company because of the fact that they did not create the curricula and they do not understand the objectives, methods of planning or organization.)

In summary, from the findings it is possible to conclude:

1. That the teachers in the centres are autonomous.
2. That they show commitment to their role, and choice of them proves that their professional and personal traits are suited to teaching in cultivation and enrichment framework.

### **5.3.2 The curriculum**

The centre managers were given two open questions 13 and 17, in which they stated how they defined the programme to the teachers. The definitions related to cultivation of excellence, unique topics and new areas of interest, developing productive thought and learning skills, as expressed in Table 4.3 and Graph 4.3. Two definitions got lower scores, enrichment (29%) and cultivating excellence (14%) because the centre managers relate to them as goals rather than detailed considerations.

At this stage, the manager examined the topics that stand up to the concept of enrichment as expressed in the Literature Review:

- a) Section 2.6.1, to allow them a) advanced study above and beyond the regular curriculum: in the sciences - topics such as types of energy, rockets and hot air balloons; in art - topics such as editing and publishing a newspaper, b) study in depth - solving problems in one scientific subject over the entire course, such as

building identikits, examining fingerprints, c) complex subjects - producing a play related to a large number of topics such as writing, directing, scenery and production, d) level of difficulty - statistics and probability; e) quality is more important than quantity - for example, mass communication, including a variety of topics such as television, radio, newspapers and literature. The club will choose to deal with one topic in which they will learn concepts, principles, skills and phenomena, from experience and producing products.

- b) Section 2.6.6 examines the rationale and aims of the enrichment programme in fulfilling the potential of the gifted student and coordinating topics to their skills and needs. This is the stage in which the decision makers are given guidelines including objectives and long-term aims.

In interviews with centre managers, (Appendix 4, question 19) they related to the issue of criteria that guide them in choosing clubs for the programme. Question 35, sections 5, 6 and 7 related to the fields that they have to include in choice considerations: a) expanding horizons (same answer as from the supervisor in question E, Appendix 2), b) developing thought and c) developing creativity. In the quantitative analysis of the findings in Table 4.2 and in Graph 4.2 (pages 190, 191) the answers of the centre managers were organized and one can see that all of them are the basic criteria for testing an enrichment programme. To these are added additional criteria such as a) originality, b) interest, c) students' requests (from feedback) and d) uniqueness.

An interesting and exceptional result was found regarding coordinating the programmes to the objectives, this result is low, only 30% of the answers. It is possible that the reason for this relates to the fact that the objectives of the project are so clear and understood to the centre managers, as seen in Table 4.1 and Graph 4.1, that most of them found no need to emphasize them again in the stage of examining the programmes. Alternatively, it could be that they do not consider them in practical application.

Teachers' interviews; for an additional examination of criteria in choosing enrichment programmes, the teachers' views were sought. The interviews were very detailed and were divided into:

- 1) Topics, study materials and teaching methods related to the enrichment programme;
- 2) The position of the teacher in relation to enrichment suited to the gifted/talented students;
- 3) The traits and unique needs of the gifted/talented students.

#### *The club programme contents*

The curriculum that teachers have is the syllabus, a list of given topics. It is usually defined as a programme. The teachers related to the list of topics and the important foci chosen for the topics in part A, questions 2 and 4. In questions 5 and 6 they were asked about the principles for organising the study materials: phenomena, definitions, problems, concepts and their organization in the fields of science and art.

Teachers' considerations regarding the topics chosen, (question 3) are more detailed than those of the centre managers because they relate to certain topics with different characteristics. For example, a) expansion of knowledge, b) curiosity, c) scientific thought, d) problem solving, e) mathematical thought, f) developing spatial perception, g) developing imagination, h) creative thought and i) verbal expression. Question 12 asked the teachers, "Is the study material based on previous skills or knowledge?" 50% of the teachers answered "yes" and 50% "no". I think that the different opinions refer to the subject of the club. The "no" answer came from the scientific clubs, one of the teachers said, "sometimes previous knowledge is a bothersome factor".

Question 14 was related to the assistance of parents, "Does the study material require parental cooperation?" all the teachers agreed, "it is possible, but not necessary". According to the teachers, parental involvement is expressed mainly in enjoying the students' achievements.

#### *The educational activity*

The educational activity is found between the goal setting stage and the evaluation stage. The activities chosen for the enrichment programmes are characterized by active learning and experiential learning based on varied teaching methods such as:

a) teach investigation skills, b) trial and error, c) team work habits, d) planning and sampling, e) observations, f) writing reports, g) producing a product and h) drawing conclusions.

The question was asked, "Are these topics and activities not related to all students, not just the gifted"? The general answer is positive, but there are a number of emphases related to the traits of the talented and their unique needs. According to the teachers' responses to question 7 teaching is done from the simple to the complex (problem solving) and from the material to the abstract (statistics and probability). The study material is constructed modularly (question 8), the explanations are in depth and more comprehensive. The rate of teaching is more rapid, and is directed to prevent repetition and boredom. The teaching/learning process is "different than in the regular class" and in questions 11 and 13 they all agreed that the material suits the level of the gifted child.

The scientific thought processes necessary are complex (question 10) and emphasise the connection to the real world in order to make the information relevant and useful (question 15). Concerning the relevance of the clubs, ten of the teachers answered that they always make connections between the theoretical topic and its use in practical reality. One of the teachers, from the science sphere, expressed his opinion thus, "in science most of the practical reality is a theoretical topic".

### *Creativity versus IQ*

One of the questions regarding the gifted/talented students relates to the issue of IQ and creativity. Today there are those who negate a connection between these two concepts and there are those who claim that a high IQ is the basis for high levels of creativity. This is discussed in section 2.5.2 on intelligence.

The creative thought is a central concept in the stakeholders' responses. The regional educational welfare manager and the local educational welfare manager did not relate to the issue of creativity. I did not ask them any specific questions because their outlook is related to the organizational-administrative aspect. On the other hand, the regional supervisor, in her response to question D (Appendix 2), included 'creativity' as one of the goals of the programme. The centre managers answered in question 35 (Appendix 4) that one of the criteria for success is developing creativity. The teachers



were asked about creativity in question 20, "Is creativity among the children encouraged in the study material?" All of them said that creativity was an objective to be worked towards in the project. One of the teachers emphasized that creativity is "the core of the programme".

### *Study materials*

In the teachers' interviews five questions in part B relate to study materials. Three of them are connected to books and teachers' guides. Regarding textbooks for the students, Question 1, the answers were usually negative. I feel that this stems from the fact that the teacher composes the curriculum and adds information booklets, worksheets and work cards, and does not write a book on the topic of the programme. Most of the teachers and instructors are aided with a teachers' guide existing for each topic (Question 2). In enrichment programmes, unlike in regular curricula, the teachers develop and create the study material as part of constructing the club. It is expressed in work sheets, photocopies, work cards, diskettes, recordings, kits, illustrations, packages, pictures, laboratory equipment and reading material given to the students (Question 3).

Concerning the costs of the materials, Question 4, the students were not asked to purchase any study materials, the teachers used the budget of the clubs for this purpose. In most cases the costs of study materials are high.

Occasionally special study materials create the difference between the regular curriculum and that which is called an enrichment programme. For example, "planning a modern city" becomes an enrichment programme when the students create a model of a city and examine all of the necessary parameters, including:

a) infrastructure, b) roads, c) buildings, d) shopping centres, e) educational system and f) industry, and then write a report on each one of the topics; this requires team work and cooperative thinking.

### *Teaching methods*

The teaching methods that create a system of mutual relations between the teachers, the student and the material are included in the educational activities. Davis and Rimm (1985), Rosmarin (1989) and Birenbaum (1997) present criteria for the

methods and activities of the enrichment programmes. Part C in the teachers' interview (Appendix 6) relates to teaching methods. They used teaching methods which included:

- 1) Presenting material that related to explanations, illustration, creation, observation, experimentation, assignments and texts (question 1).
- 2) A didactic mechanism including questions, summaries, personal work, role-playing, and brainstorming, accompanied by explanations, description, examples, and principles (learning and thinking "in another way") (questions 2 and 3).
- 3) Teaching methods that concentrated mainly on investigation, discovery, experimenting, individual work, group work and little use of frontal lectures (question 4).

In the interview with the regional educational welfare manager (Appendix 1, question 9), teaching methods in the enrichment centres were defined as "unconventional".

#### *The teaching/learning process*

In the centres this usually takes place in small groups and individual work, so that the teachers can reach the students, examine their progress and guide them in continued development of the experiment/product. All the teachers mentioned this in their answers to question 4, especially "when there is a need for complex performance of consolidation of an idea". The teacher's involvement as a director and helper is important, and is necessary at the start for organization, planning the task/experiment, explanation, operation and guidance. He has to be a partner in the teaching/learning process and intensively involved in it. In clubs related to personal work over the entire year with frequent experiments, the size of the group is 15 students, for example, The Magic of Science, Experiments in Chemistry, Gliders. In other clubs there are 20 students in each group, for example, Logic, Mass Media, Creative Writing, and Computers. Clubs that take place in laboratories also include a laboratory assistant.

#### *The educational environment*

According to Porter (1999) the educational atmosphere is supported by organizational and administrative data such as buildings, equipment and teaching aids that enrich the environment of the gifted students. All the teachers (except one from the Logic club) claimed in Part B, Question 5 that they need physical conditions like laboratory

equipment for operating the programme. The regional educational welfare manager related to the physical environment in question 10 (Appendix 1) and emphasized the need to locate the centres in secondary schools. The centre managers were asked in question 30 (Appendix 4) about the physical conditions, a) buildings, b) furniture, c) equipment, d) laboratories, e) computer rooms and f) art rooms. All of them responded that the conditions are "good" (three of them used the word excellent").

In summary, curricula in the enrichment centres are examined according to unique criteria which test the topics, the activities, the teaching materials, teaching methods, teaching/learning process, and the educational environment. They create a challenge for their writers who need to develop a different programme from what is normally provided.

### **5.3.3 The student**

In the professional literature on enrichment programmes for the gifted/talented, the student is placed in the centre (as in my recommended model). According to researchers the gifted students excel in many traits such as, a) curious, b) self aware, c) explorer, d) independent e) seeing the whole picture and f) original. According to the teachers (Part E, Appendix 6, question 3), the gifted students ask many questions, demand direct answers, explanations and instructions. Learning is based on tasks and assignments of a high level of difficulty and complexity, leading them to draw conclusions, solve problems and create new knowledge. According to the teachers' responses, the student holds a place in both planning the process and running it. One of the teachers perceived his role as, "to examine where the students' thoughts lead, in order to allow freedom of thought that will guide them later".

More details about the gifted can be found in the analysis of research question 3.

In summary, the centre managers, in choosing enrichment programmes, consider their suitability to cultivating the gifted/talented students and satisfying their unique intellectual needs that are not dealt with in the regular educational system. The managers are thus implying a view of gifted students as qualitatively different from others, in agreement with writers such as Montgomery (1996) and Freeman (1991),

regarding the amount of accumulated information have; in their unique personal traits; in their unusual abilities to cope with academic problems, to analyse them and to perform a synthesis of existing information into something new, as discussed in section 2.5.

#### **5.3.4 The observation**

An additional research tool, the observation (Appendix 9), examined, tracked and verified the issue of study content, study materials, teaching methods, mutual relations between teacher and students, and the environmental conditions as expressed in the centre managers' and teachers' interviews. The observations in this study were analysed through the quantitative approach in chapter four, in 1 to 3 scale questions. In each question 3 means a positive answer and 1 means a negative answer.

Analysis of the observations was performed, as mentioned, according to an analysis of the teaching/learning process. It was divided into four parts – teacher – student – mutual relation – conditions. The observer examined:

1. The study and content of the club - regarding difficulty, complexity, level of abstraction and the principles of organizing the materials, suited to the group of gifted students (see sections 2.6.3 and 2.6.4). Topics that confirmed the answers of the teachers in the interviews.
2. The command of the teacher in his professional area - which helped verify the issue of the centre manager's choice of the teacher (see section 2.4.2).
3. The teaching methods used by the teacher to promote the learning process, the didactic mechanism, accompanying the form of presenting the material: experiments, tasks and topics for debate. The data that were examined were the answers of the teachers in the interviews regarding the teaching skills suitable for the nature and needs of the gifted/talented students (see section 2.6.9).

The above paragraphs were related to the place of the teacher and contained 13 questions. The results, which can be found in Table 4.23 (page 216), were quite high with an average of 2.44 – (out of three). The highest aspect was in question 1, "The teacher's control of the topic", with an average of 2.92. It is possible to see that the teachers that were chosen are experts in the topics that they teach. They encourage

interest and excitement, communication and teamwork, and this leads to experiential learning (see sections 2.4.2 and 2.6.9). The professionalism is also a central element in the considerations of the centre managers when choosing the teacher (Appendix 4, question 22).

The surprising fact uncovered in the observation is that the teachers construct the lessons and study materials for a homogeneous group which is often divided into work groups. The group of talented students chosen for the project is the upper percentile of every class. The entrance threshold is 89/90 (out of 100) or above. It is possible that a group of 15 will receive a grade of above 95 and this will then become the entrance threshold.

According to these data, it is possible to assume that the teachers' assumption that the groups are homogeneous is on the most part justified. This is in opposition to the hypotheses of the regional supervisor and centre managers who decided that these are heterogeneous groups because of the determination that the ten percent of students recommended do not come from all of the schools, but rather ten percent from each school, with different learning levels. This is one of the problems raised in the interview with the centre managers regarding the creation of homogeneous groups by age. (It is possible that there are communities with mostly homogeneous populations and therefore there are no differences in the levels of the students coming from the various elementary schools.)

This highlights the existing difference of opinion between educating the gifted students in special homogeneous classes, in which they can learn at an accelerated rate, expand their fields of interest and take advantage of their intellectual abilities; and education in regular heterogeneous classes in which the main problem is boredom and signs of lack of interest in studies.

I think (and this is also the answer of the teachers) that working with a homogeneous group is more comfortable. The group progresses at a uniform and rapid rate and the students learn within a supportive group framework in which they can share their ideas and enthusiasm. According to the teachers with whom I spoke after observing classes, the correct solution for gifted students is remaining in the regular class, coupled with participating in enrichment clubs, thus satisfying the social-emotional

needs of the students to remain among their peers, and the intellectual needs of the students in the enrichment centres.

4. The place of the gifted student – this part contained seven questions that relate to different aspects of student participation. Table 4.24 (page 216) in the findings showed the average score of all the elements,  $m = 2.44$ , which is the same result as the teachers' shown in Table 4.23 (page 216). The highest score,  $m = 2.81$ , was given to investigation and experiments performed by the gifted student. The lowest score,  $m = 1.85$ , was given to question 6, "The students help each other". That reinforces the answers of the teachers about individual work that suits the "independent soul" of the gifted student and helps to fulfil his personal potential (see section 2.5.5).
5. The system of relations in the club - in the Findings, Table 4.25 (page 217), it is possible to learn about the student-teacher relations within the framework of the lesson. The two responses that received the highest point rating,  $m = 2.71$ , were interesting study material causing curiosity and excitement, and an informal atmosphere permeating the club. The informal relations between teacher and student creates a unique atmosphere, about which the teachers were asked in the interviews, section F, Question 7 (Appendix 6). The answers included: a) pleasant, b) comfort, c) full of excitement, d) interesting and e) cooperative.

Supportive environment and cultural atmosphere are important factors in cultivating the gifted student (see section 2.5.8). The feelings of affection and trust toward the teacher create a personal system of relations between the teacher and the student (both regular and gifted). In one of the lessons I observed, I was witness to a dialogue that took place between the teacher and a student, that became a discussion and debate in which all of the students participated. It happened while investigating a problem that arose as a result of examining a natural phenomenon in a science club and the students' attempted to find creative solutions. The teacher gave each one of the students' questions and answers "stage time", and the learning process, which perhaps "deviated" from the topic of the lesson (which is difficult to allow in the regular educational system, because of the



need to “cover material”), provided a feeling of interpersonal communication and a relationship of trust and cooperation between the teacher and the students. Spending “high quality time with the individual” and “eye level” conversations are not possible in teaching a regular class in which the teacher is the “supreme” authority (see section 2.6.9).

To the question about whether moments of silence were created over the course of the observation, the negative answer was unequivocal,  $m = 3$ . This explains the issue of “to make noise” appearing in the professional literature in the traits of behaviour of the gifted/talented students. Within the framework of the regular class, the gifted/talented student asks many questions. Often he/she is bored and there is the phenomenon of disciplinary problems that arise. Teachers in the regular school system cannot pay attention to the gifted student in the classroom when they are in a large class. In the clubs, the gifted child has a “stage” for his knowledge and curiosity, expressed in the observation in the question on showing sensitivity to the needs of the student,  $m = 2.42$  (out of 3).

The section related to disciplinary problems of the gifted student received a low grade,  $m = 2.28$ . Teachers say that they have no opportunity to solve exceptional problems of students in a club that takes place once weekly, and any issue related to discipline is directly referred to the centre manager.

All of the centre managers answered, in question 34 (Appendix 4), that there were very few discipline problems in the centres. They do not have to cope with a disruptive child. Any disruption receives a warning and, if necessary, the child is expelled from the club (which is a very rare occurrence).

In the teachers' questionnaire (Appendix 5 part D, question 2), all of them admitted that the number of disciplinary problems was low.

6. The environmental conditions - during observation and reporting, the researcher must evaluate the environmental conditions as they relate to the teaching/learning process. The last part of the observation contained seven questions that related to environmental and physical conditions. Table 4.26 (page 218) in the Findings showed high scores. The average score of all the elements was  $m = 2.42$ . The

highest score,  $m = 3$ , was given to Question 1 about the significant effect of the organization of the environment. Most of the centre managers (Appendix 4, question 30 in the interview) agreed that the environmental conditions are an inseparable part of the enrichment clubs.

The teachers, agreed with this, determining that organization of the environment is very significant in creating the atmosphere in the lesson. As one of the teachers said, "The student needs to feel full of enthusiasm, achievement and unit pride" (Appendix 6, part B, question 5, part F, and question 7). Improving the external appearance of the educational institute is an integral part of improving teaching/learning methods. This is one of the reasons that most of the centres operate in modern buildings that include laboratories, computer rooms and workshops that are equipped with the newest accessories. However, a number of centres prefer to remain in regular schools because of the high cost involved in using the resource centres.

Certain parameters of the teachers' answers in the interviews (Appendix 6, part E and part F) could verify the observation process, these are shown in Table 5.4.

**Table 5.4 Similar Parameters between Interview and Observation**

Interview	Observation	Table 4.24, 4.25 Average (1 to 3 scale)
Coordinating topics to the gifted population	Coordination and interest among the students	2.71
Considering the student's tendencies	Showing openness and sensitivity	2.50
Questions from the students	Participation in debates	2.28
Student's relation to the activity	Performing experiments according to instruction	2.81
Tasks and drawing conclusions	Reporting	2.40
Competition or achievement	Informal atmosphere	2.71
Student behaviour	Cooperation, team work	2.75

The high grades that were recorded prove that the teachers who teach the clubs are prepared to expose the lesson to examination, criticism and allowed the entrance of the observer. The centre managers organize open days when visits are possible and

friends from school can join. Parents and many guests come to examine the clubs and "transparency" is an integral part of the centres.

In summary, I added the observations in order to record behaviour as it occurs. It was important for me to see the teaching/learning process in the clubs and to compare the verbal answers, received from the teachers' questionnaires and interviews, with what I observed was actually and the students' behaviour in the clubs. It was used to "gain insights which can be tested by other techniques".

#### **5.4 What is the Level of Satisfaction and Enjoyment of the Gifted/Talented Student?**

Research question 3 relates to the gifted students. In the Literature Review, in section 2.5, there is discussion of gifted/talented children.

The regional educational welfare manager was asked about the process of identification in question 6 (Appendix 1). At the beginning of the project, third grade students were tested in all the schools in the region. Today the tests have been cancelled and, for the last five years, identification (section 2.5.8) has been expanded and includes recommendations about personal traits (sections 2.5.5 and 2.5.6) and a student's achievements in school. The regional educational welfare manager agreed with this change, but the problem is "subjective recommendations of school managers, class tutors and parental pressure".

The supervisor was a partner in the committee (1997) that determined the target population in the new process. She mentioned the choice of the student in question E (Appendix 2) as one of the new policies of the Ministry of Education.

The local welfare manager also related to this issue in question 4 (Appendix 3) as "talented students who were defined by the Ministry of Education".

The centre managers were not involved in the process of identification and location (therefore I did not ask them about it), but they related to the subject in question 39 (Appendix 4) concerning changes and recommendations for improving the clubs, "raising acceptance threshold".

All the teachers answered in their questionnaires (Appendix 5, question B), that they did not know about the criteria for choosing the students, but they were told that they



were "the upper percentile" from all the schools that 'feed' the centre.

The first research question related to the goals of the stakeholders. The first stage in creating the framework of an enrichment programme is to define the general goals and the reasons for its creation in fulfilling the potential of the gifted children. The goals at the local level of the centres referred to managers and teachers. These goals were examined through the achievement of the gifted student. The centre managers (Appendix 4) related to the cultivation of the gifted students in question 35 in which they were asked about the success of the clubs in the fields of:

**Table 5.5 Areas of Success**

The Areas	Very Great Success	Great Success	Little Success
Promoting students	30%	50%	20%
Social consolidation	10%	60%	30%
Increasing self confidence	60%	20%	20%
Motivation	30%	70%	-
Expanding horizons	80%	20%	-
Development of creative thought	70%	30%	-
Creativity	60%	30%	10%
Improving self image	60%	40%	-
Unit pride *	60%	20%	20%

\*"Unit pride" – this topic raised a debate about the concept of giftedness that has been connected to 'elitist' perceptions. The basic disagreement is whether there is justification in investing in unique education for the gifted.

According to the centre managers, the gifted students in the project are "a unique team" and the local community sees them as a special group. Teachers claimed that they developed pride in the achievements of their gifted students.

In the findings the answers from the centre managers, which include criteria for enrichment programmes, suggested that the goals stated by the Ministry of Education in 1982, to cultivate and enrich the gifted child, were achieved. The supervisor in question F (Appendix 2) gave the same answers.

One of the problems related to the personality of the gifted relates to the emotional aspect. The intellectual development of the gifted is more rapid, and often the child is accelerated to a higher-grade level, although emotionally, he still “belongs” with his age group. According to Landau (1990), the problems of gifted children up to age 12 is the gap between their intellectual development and their emotional development. and therefore the gifted students should not be removed from the regular class. In special cases of high-level giftedness, the educational system will have to use an “accelerated” track because of the fact that the gap in educational abilities between them and their classmates will grow rapidly.

**Centre managers**, who need to be aware of the emotional development of the gifted student, participated in a workshop on “social/emotional ability” explaining the emotional problems of the gifted students and methods of coping with them. This is one of the reasons that every centre runs a club related to art, for example, Creative Writing, but relates also to the internal world of the child, teaching him to cope with daily reality, including teamwork, cooperation and learning values. **The supervisor** evaluated four areas “as very high success” (Appendix 2, question E), two of them are personal traits, social consolidation and self-confidence. **The teachers**, in their interview (Appendix 6, question 19), were asked about the emotional area, 11 out of 12 claimed that they have to consider this factor.

It seems that the reason for this lack of relating to the social-personal dimension is the number of elementary schools that “feed” the project. The students who come from different schools number no more than three from each grade from each class. Sometimes the student will find himself the only one from his school or class. This will not prevent him from continuing to participate in the club out of interest in the topic he chose, this creates “social heterogeneity”. In my opinion the time that they spend in the centre is so limited that there is no opportunity to discuss the creation of social ties, and perhaps this is the reason that the managers do not see the social issue as an objective of its own.

The teachers of the clubs place the talented students in the centre. In the interviews (Appendix 6) they claim that the study material is suited to their level and students fulfil their potential (question 11, Part A, question 1, Part E). According to the

teachers' answers, students have command of skills and understanding of concepts and phenomena, which provide them with a feeling of achievement. They admit that the students are curious and ask many questions (question 3, Part E). They encourage creativity through debate (question 20, Part A), experimentation, operations and complex tasks that demand solutions and drawing conclusions (questions 4 and 5, Part F). All of the teachers decided, from the feedback of the children, that the topics transmitted in the clubs are a source of enjoyment and satisfaction for the students (question 3, Part F).

The students' questionnaire (Appendix 7) validated the teachers' answers and feelings. The feelings of satisfaction and enjoyment were due to the following: the enrichment programme, teacher/instructor, quality of teaching/learning and acceptance of to the programme.

Although there is no absolute index for comparing satisfaction, from the averages of the quantitative analysis, it seems that in general, high satisfaction is reported.

Question number 12 relates to difficult subjects taught in the clubs and was not considered as separate factor. It showed a low average grade, 2.10, which means that some courses and issues are very complicated and there are students who have difficulties with this, especially if we follow the models about gifted profiles that show significantly different characteristics and behaviours between gifted and talented students.

The choice to provide four options for answers from the students was made to prevent a middle answer. From the answers it is clear that most of the students chose the two answers 'correct' and 'very correct', and therefore the median is higher than 3. The gifted students are very critical; choose to say what they think and I find their answers authentic, true, straight and honest. An example of this can be found in the answer to question 30 on the students' questionnaire in which they were asked what they did not like in the programme. The answers included direct criticism regarding the lack of interest in a certain club, and teachers' tardiness for lessons over the course of the year.



Regarding the programme, students said, in answer to questions 10, 14, 20, 25 and 27 a) interest, b) learning new things, c) recommendations to friends, d) a desire to continue in the project, and an e) announcement that it is fun. This means that they feel that the programme succeeded in satisfying their curiosity.

The regional supervisor claimed that the students enjoy the clubs and come regularly (Appendix 2, question A). The reasons for this are:

1. The interest that the student finds in the clubs.
2. The clubs act within an external framework and students do not identify them with schools.
3. Parents pay for the clubs only because of the child's desire to participate in them.

About their teachers, in answer to questions 15, 16, 17, 21 and 24, the students related to the image of the teacher as: explaining well (question 15), showing patience (question 16), making an effort for the whole group to understand (question 17), relating to all questions (question 21), and acting friendly to all students (question 24) (a fact that proves that the choice of teachers was correct). I think that these common answers are typical of all children aged 8 - 11. They used to generalize the term "good" in question 15 and "friendly" in question 24. Students added details about the role of the teacher in the open question 29, for example, expanding knowledge, interest, supportive and tolerant.

The third factor includes answers to questions 13, 18, 19 and 22 that relate to the quality of teaching/learning. The following was found: learning new subjects, good understanding of the topics learned, difficult and complex things, (appropriate for the criterion of enrichment on level of difficulty and complexity, question 12). The subjects learned in the centre help them to understand better the lessons in the regular class. It is possible that the reasons for this are the teaching methods used and the personal attention paid to the student.

Teaching quality received a low grade for two possible reasons:

1. Students do not have enough tools to examine the quality of teaching and therefore use words related to understanding and feeling.
2. This was the first time the students had to cope with the factor of comparing

between two educational frameworks, the schools and the clubs, and describing how the centre operates compared to regular school.

Regarding acceptance to the programme, the students stated a feeling of happiness (question 9) among them and their parents (questions 11 and 26), and acquisition of new friends (question 23). This participation in clubs among students, who have the same interests, strengthens the self-confidence and self-image of the gifted student.

Peer relations are important and, according to Rogers (2002), this is the place and the first time that gifted students can have a real friend. Note that social consolidation and receipt of self-confidence (question 22), was recorded as success according to the centre managers (question 35) and the regional supervisor (question F).

The last part of the questionnaire contains open questions, Question 29 was, "What did you like in the programme?" The students related to:

1. The level and content of the clubs: "every week we do something different", "new topics", "developing thought", quality of contents, topics and products, study in depth, complex subjects.
2. The activities and teaching methods: "method of learning", operation skills, investigation and experimentation, "the teachers do not tell you what to do but give you direction", varied teaching methods, learned via teaching of discovery and research.
3. Enjoyment: fun, interesting, "I wish we had the club every day", personal choice of topics leads to satisfaction and enjoyment.
4. Social consolidation: "new friends", "gives me self confidence", "there is no violence", "aesthetic learning atmosphere", learning about partnership as a member of a team, social sensitivity and tolerance.
5. The product or the achievement: planning, production and construction of models, appropriate levels of outcomes and achievements.
6. Some even found participation in the club as having implications regarding regular school. "I think that the clubs advanced me in my class and in my studies and I think that I am more educated and experienced".

Others related to the teachers and the staff: "certified teachers", "professional",

“understanding and supportive”.

Question 30 asked, "What did you not like?" The students in the centres cited the problems that they have encountered such as: tardiness of teachers and topics that were too complex and created difficulty in understanding and a level of difficulty in processing the knowledge.

The students cope with feedback at the end of every year. Sometimes the questionnaires are given out at the end of each club, and there is no doubt that the students are skilled in completing them.

In the questionnaire sent to the parents a number of questions were asked about the students. Question 6 related to expression of satisfaction in the clubs and question 9 related to educational change, self-confidence and social consolidation. The connection between parents and children was made through question 5 regarding the child's participation of parents in his experiences in the clubs and question 7 that asked about issues of parental involvement in choosing the club with the children. The students enjoy their clubs and transmit their impressions to their parents.

The place of the students in the observation (Appendix 9), examined the form of participation and activity in the lessons. The gifted students are curious, their rate of understanding and absorption is rapid, and sometimes they show a lack of patience for a second explanation. They are creative in choosing solutions and at the end of the process of learning they want to see results, products or models that have been completed. I got similar answers from the teachers in their interviews, question 1, Part F, "In the short term – feeling immediate achievement".

In summary, the enrichment programme in the centres received a grade of 3.5 (out of 4) from 468 talented students in grades 3, 4, 5, and 6. The gifted students focused on the curricula, which expose them to a variety of new topics, enriching their world, teaching them cognitive thought and learning skills, and allowing them to create unique products within an enjoyable and challenging framework.

## **5.5 Does the Project Satisfy the Expectations of Students and Parents?**

Research question 4 deals with parental involvement in clubs and examination of their expectations and those of their children from participation in enrichment clubs. The foundation for parental involvement is based on the right of parents to affect their children's education. The parents, who are one of the stakeholders in the study, are also partners who finance the activities of the club and therefore are eligible to receive updated information regarding the activities in the centres (see section 2.4.3).

In the questionnaire distributed to the parents (Appendix 8), the parents were asked about their satisfaction with the programme in relation to coordination of expectations.

In the chapter of the findings, part A of the questionnaire, the questions were divided into five factors:

- 1) Inclusion, centre activities which try to involve the parents in the project. This allows creating a system of formal significant relation.
- 2) Level of parents' familiarity with the programme and more involvement in the pedagogic field.
- 3) Information, this is seen as a low level of involvement.
- 4) Degree of parental involvement out of recognition of the need to increase parental responsibility towards the educational system.
- 5) The initiative behaviour that can provide students with additional educational services.

The second part of the parents' questionnaire included general details, such as: gender, age, country of birth, education and location of the child. The results in satisfaction level according to gender, age and location of the child did not indicate significant differences.

For the results in satisfaction level according to parents' origin only in question 6 – "Does the child express satisfaction with his studies in the club?"- is there a significant difference. Israeli parents report higher satisfaction than the immigrants did. It is possible that this difference stems from the informal relationship that exists within the Israeli family, and the openness of the children within this framework.

The results in satisfaction level according to parents' education indicate two differences: parents who have lower education are more familiar with the programme and perceive the programme as encouraging more parental involvement (Question 2) than parents with higher education.

It would seem that this stems from their desire to promote their children's' education.

In open question 17 the parents believed that they should take initiative in the programme, and that deepening the connection will contribute to an educational climate from which all of the participants will benefit. Eighty-eight percent of parents asked to be involved in topics such as choosing clubs, a high level related to the educational policy of the centres and cooperation which means taking part in the decision-making process. However, I think that their answers were not directed towards defined involvement in content or in the learning process, because they trust the teachers of the clubs.

In the questionnaire for the local educational welfare managers (Appendix 3), question 6, part 3, related to the existing connection between teachers and parents. One welfare manager determined that there is no connection and all fields are within the authority of the centre manager. An educational welfare manager from another community determined that there is a tie between teachers and parents. For example, at the beginning of the year, if parents receive a list of clubs, and the names and content are not clear to them, they turn to the teachers to receive an explanation. An additional example is that parents are invited to participate in lessons when:

- 1) The request comes from them;
- 2) The student is excited and has an unusual experience in the club, and is interested in including a parent in one of the lessons.

In the interview with the centre manager (Appendix 4), question 32 asked if the centre manager has a ties with parents. The answers related to telephone contact, open days, meetings in the centre, on-going meetings, information sheets, parents' days, and common workshops for parents and students. Four managers explained to me that, in their opinion, there is no parental involvement in the centres. One manager answered "no ties". The contact is only a formal one. Question 39 asked, "What changes would

you recommend to improve the programme"? No one mentioned the parents as partners in the project. I think that this attitude emphasizes:

- 1) The idea that the gifted student is in "the centre" and the attention is focused on his/her cultivation.
- 2) The centre managers are not aware of the power of the parents' involvement and in my opinion parents should be involved in the project as I suggested in my recommended model – in the second circle.

The "hothouse" manager told me that she is involved with the parents because they come every week with the students, sometimes participate in the clubs, and have the opportunity to ask about and discuss the project. In some cases the youngest students have difficulty separating from parents, especially in grades 1-2. He/she goes through a process in which one parent is invited to remain in the lesson until the child acquires enough self-confidence and asks the parent to leave the club. At first, the parent must remain to the end of the lesson but, after a number of sessions, the child comes alone and becomes a student with high motivation. In such cases, there is no doubt that the centre manager and the teacher proved unusually sensitive to the emotional state of the child. In a regular school, the problem would have been given to the school consultant to deal with.

Among the younger students in grades 1 and 2, parents are bringing the students to the centre, and it is possible that they are the driving force behind attendance. It is possible that their wish to participate in the project stems from a number of causes:

1. Status - labelling the child as gifted at a young age.
2. The fear that the children are still not ready for an educational environment outside of school walls.
3. The centre is far from the home and the students need transporting.
4. The social group is unfamiliar to the students - they come from all of the schools in the community.
5. The security situation, which provides an atmosphere of anxiety, especially among young children.

In grades 3-6 the students come usually by themselves, without parents.

In the interview with the teachers (Appendix 6) a number of questions were asked



regarding parents:

1. Does the study material require the cooperation of parents? (Question 14, Part A). Two teachers answered the question negatively. The other ten said that it is possible but initiated by centre managers.
2. Is the price of the study materials such that parents can pay for it? (Question 4, Part B). Three teachers did not answer the question because they did not know. Nine claimed that the student receives all necessary materials in the centre.
3. Is there feedback or opinions expressed from outside people/persons such as parents? (Question 8, Part F). The teachers answered that feedback at the end of the year is received from parents and students. Some teachers even said that over the course of the year, when a club ends, parents make sure to thank the teachers and express the satisfaction of their children. One teacher said that she receives telephone calls from parents who give their impressions of the experiences of their children in the club.

In the students' questionnaire (Appendix 7), question 28 asked the students about their expectations regarding the project, "Is the programme as you wanted it to be? Better? As expected? Less good? Or bad?" The results were average, 3.28, on the scale 1-4. Question 31 asked the gifted student to grade the programme on a scale of 1-10. The results were average **8.92**, Median 10, mode 10.

There is no doubt (looking at the results) that students say that the programme gives an excellent response to their expectations.

In summary, parental involvement within the framework of the enrichment centres is not significantly expressed. It is possible that this stems from the fact that this is a project, with a good reputation. Professional and high quality teachers teach within the project - and parents trust them. The students come to the project diligently every year, show interest and enjoyment, and parents trust the stability of the project, its continuity and its ability to satisfy the unique needs of their children.

### **5.6 What is the Impact of Variable Factors Involved in Choosing the Programme?**

Research question 5 examines the impact of factors such as budget, availability of

teachers, geographical position, and competition with other programmes for the leisure time of the students. In the interview with the regional supervisor (Appendix 2), she was asked in question G about the problems and difficulties related to the enrichment centres. According to her answer, classification of the problems can be divided into a number of levels:

*1. The local municipality*

- a. Budgetary problems including low salary and poor employment conditions. In most cases these frameworks are expensive to run and it is clear that the Ministry of Education cannot fully fund the educational activities for the gifted children.
- b. Difficulties with the school in which the clubs take place, mainly on-going maintenance of equipment and operation of the centre. The intent was to present difficulties that centre managers encounter in receiving accessories such as television, projectors, and video equipment for use in the clubs, and this is also the reason that this datum received a low grade (1.76) in the chapter on Findings (see Table 4.26 page 218).

*2. The enrichment centre*

- a. Parents have difficulty paying because of their financial situation.
- b. Cancellation of clubs because of low interest.
- c. Availability of teachers also related to geographical distance distanced areas.
- d. Security in the schools. In the morning hours a guard is posted and is paid by the Ministry of Education or the educational department of the community but, in the afternoon hours, the municipality requires that the centre pay for a security guard.
- e. A small centre (fewer than 100 students) cannot “purchase” expensive programmes and must often compromise, which damages the quality of the clubs.

The local educational welfare managers (Appendix 3) related in question 7 to the same problems that the regional supervisor detailed. The centre managers (Appendix 4) were asked a number of questions relating to various problems. Question 24 was regarding personnel. The answers received were: problems in finding teachers because of the high costs (due to competition with external institutions and

companies that pay higher salaries to instructors/teachers). There is no entrance barrier for the clubs, every student who wants to may participate unlike enrichment programmes in which only 10-15% of the students are accepted after recommendation according to rigid criteria). It means also competition with other programmes for the free time of the student.

Question 25 examined the function of the club operators. The problem exists only because of unskilled instructors coming from companies that develop enrichment programmes

Question 34 organizes problems according to the following topics:

- Dropping out - most of the respondents determined that this is low and usually only at the beginning of the year. (The same response was given by the supervisor, – 2% drop out).
- Teacher absence - very low
- Discipline - very few problems, although in certain cases parents are involved in the issue and the student is given a warning. In rare cases, the student is expelled.
- Change in personnel - mainly related to external companies that change instructors over the course of the year.
- Equipment malfunction - few malfunctions. This is not felt in the centres where there is a maintenance man.
- Personnel - in a number of centres, because of the low budget, personnel are lacking, such as a secretary, maintenance man, guard and lab assistant.
- Budget and salary - in recent times the budgets have been lowered each year and this is mainly expressed in the lack of operation of enrichment activities outside the centres. The centre managers said in the interview that, without a significant rise in salaries for teachers, it will be difficult to locate high quality teachers for the project.
- Geographic distance - all of the communities that are far from Haifa have difficulty finding teachers, both because they must be paid high sums for travel expenses and there are teachers who must be paid for the time taken to travel.
- Parental payments - the recent difficult economic situation in the communities where the centres exist means that there is a high rate of unemployment. This is especially difficult among families with many children. Parents are forced to

refuse to place the child although they want him to participate in the club. In other cases, payments are delayed and it is difficult for centre managers to remove students from the activities for this reason. There is no doubt that payment by parents causes difficulty in on-going operation of the clubs, because all of the study materials and equipment are acquired from these monies.

In the questionnaire (Appendix 5), the teachers were asked in section B about problems of dropping out. The answer received was negative although some claimed that sometimes there is migration from club to club. In section D, the teachers were asked about problems of discipline and problems of equipment (question 2). The answers were that problems are referred to the centre manager.

Regarding problems in general (question 9), a number of teachers claimed that students show a lack of patience because they want an immediate answer. Teachers say that there are some students who are angry due to lack of success, which sometimes causes discipline problems. The anger, the emotional factor, is expressed strongly by the gifted student after failure or disappointment.

The students (Appendix 7) were asked in question 30 to record what they did not like, some of them cited problems mentioned as factors in research question 5: teacher turnover and lack of equipment.

The parents (Appendix 8, question 16) were asked about problems that they encounter but the answers were not related to factors mentioned in the research question, rather to the essence of involvement and inclusion.

Over the course of the observations (Appendix 9), conditions and the environment were examined including those mentioned as problems. For example, a lack of auxiliary personnel, rated 1.85, the existence of equipment, rated 1.76 (the grades are out of a max. 3).

To summarize the variable factors affecting the centres and the programmes, the budgetary considerations are the main obstacle to the project management.

## **Chapter 6**

### **Discussion and Conclusions**

#### **6.1 Preface**

Over the course of the Literature Review, one could see that the interest in gifted students has grown considerably in the last decade and there is great public awareness of the need to cultivate gifted and talented students, to encourage them to fulfil their potential, and to devise special educational programmes for them. The way the gifted are educated will "inspire them to approach new developments that will form the basis of future society" (Freeman 1991, p.211).

This study examined ten enrichment centres for the gifted students in the North of Israel – a project which was established in order to cultivate the top ten percent of students in elementary schools in grades 1-6. In order to succeed in meeting the needs of the gifted students we need the cooperation, involvement and support of those who supervise, participate, manage, and develop the programmes and allocate resources – the stakeholders: educational authorities, managers, teachers, parents and students. The present study belongs to the category of evaluation researches and, as such, should provide knowledge and understanding to the stakeholders regarding the operation and management of the enrichment project, because one of the key issues is ensuring that the outcome will be implemented.

The data from the findings in chapter four described the management of the centres, clarified the decisions of managers, examined the teaching/learning process while tracking the curricula, and examining the image of the teachers and the mutual relations between the teachers and the gifted students. Most of the individuals discussed "what exists" (according to their perceptions and decisions after getting feedback at the end of every year) and added requirements/recommendations regarding improvements for the future, on a practical level, each stakeholder in his own area. It was clear to all that, although the project is successful, it should not remain static in an era of frequent changes, and it should be updated every year.



Each one of the stakeholders is responsible for making decisions in certain areas, while determining criteria for operation and performance. This is shown in Table 6.1.

**Table 6.1 The decision-making areas of the stakeholders**

Levels	a. Policy/Political/National	b. Regional
	<p>Determining principles and guidelines for egalitarian education including the gifted and talented students (Ministry of Education, Unit of the Gifted, law of Promoting Gifted Students - 20/7/88).</p> <p>Regional managers who make the decisions on the political level (planning the enrichment programme within the framework of the welfare programmes - 1983). (Sometimes considering pressure groups who oppose cultivation of "elite" groups).</p>	<p>The Regional Manager - initiating the project in the Northern Region - 1982.</p> <p>Determining objectives, tracking and control of the project.</p> <p>Supervision of the centers.</p> <p>Appointing centre managers.</p> <p>Transfer of lists of students (target population) to the supervisor.</p> <p>Consolidation and development of managerial staff through training.</p> <p>Tracking the clubs' activities.</p> <p>Determining the cost of materials - charging it to parents.</p> <p>In charge of the budget of the project.</p>

c. community	d. Centre	e. Parents-Students
<p>The educational authority decides on the budge for the project in the community</p>	<p>Centre managers make decisions regarding: employing teachers, scope of enrichment programmes and suiting them to the ages of the students, determining enrichment activities and dividing the budget among the clubs.</p>	<p>Parents encourage the student to participate in the programme and pay for them. The student, on his part, is interested in participating in the club. His regular attendance attests to this.</p> <p>There is no doubt that the decisions of parents and students about participation in the clubs are related to their satisfaction with the enrichment project and the variety of topics and activities.</p>
<p><b>f. Schools</b></p> <p>Identification and location of the gifted students and transfer of the data to the regional supervisor.</p>		

Over the course of the study, I examined, through five research questions, the world outlook of the stakeholders. The discussion will be followed by a summarising section that will include implications and practical conclusions.



The first research question examined achievement of the goals set upon the establishment of the project.

## **6.2 Dealing with the goals of the project: perceptions of the stakeholders**

From the literature survey relating to the first research question regarding the perceptions of the stakeholders about the goals of the project, it is possible to learn that:

- 1) The goals are perceived as being transmitted according to a hierarchical structure - from the supervisor to the centre managers, and then on to the teachers.
- 2) The general objective of the enrichment programme is declarative/expressive, to fulfil the intellectual potential of the gifted students, and functional, in detailing the goals of cultivation on the level of teaching and the learning process.

According to the findings, the stakeholders reported that the programme succeeded in achieving its goals on a high level. The main importance of the enrichment project is found in the intellectual development of the gifted students, while suiting the content of the clubs - the enrichment programmes - to fulfilling their potential - the needs of the student. This outlook relates to the needs of society in which the gifted students show: involvement, responsibility, social sensitivity and leadership. These findings clearly determine:

- a. that the project succeeded in fulfilling its goals- promoting those with high abilities and enriching in topics which are not learned in school.
- b. that the continued existence of the project stems from its perceived success.

Success is related to a number of parameters:

- 1) The activity of the supervision – managing the project, responsibility for the administrative and pedagogic aspects.
- 2) Consolidation of a loyal and trustworthy staff of managers who invest most of their efforts in convincing the local educational authorities of the vitality of the project, being aware of changes in the environment and the community, ensuring fulfilment of the gifted/talented student's potential, and satisfying parental expectations.
- 3) Finding suitable teachers to teach the gifted students.
- 4) Choosing unique enrichment programmes.

The analysis of the findings focused on two concepts, survival and success, and examined the reasons, for the success of this project. The concept success usually expresses an evaluation of a given performance by an individual or a group of individuals. When the issue is related to an organizational system (enrichment centres), the concept expresses achievements and results that can be examined and evaluated.

Success is a direct result of the factors which act within and outside of the system. Understanding these factors can serve as a key to effective and purposeful management of the project. The ability for an enrichment programme to succeed is derived from:

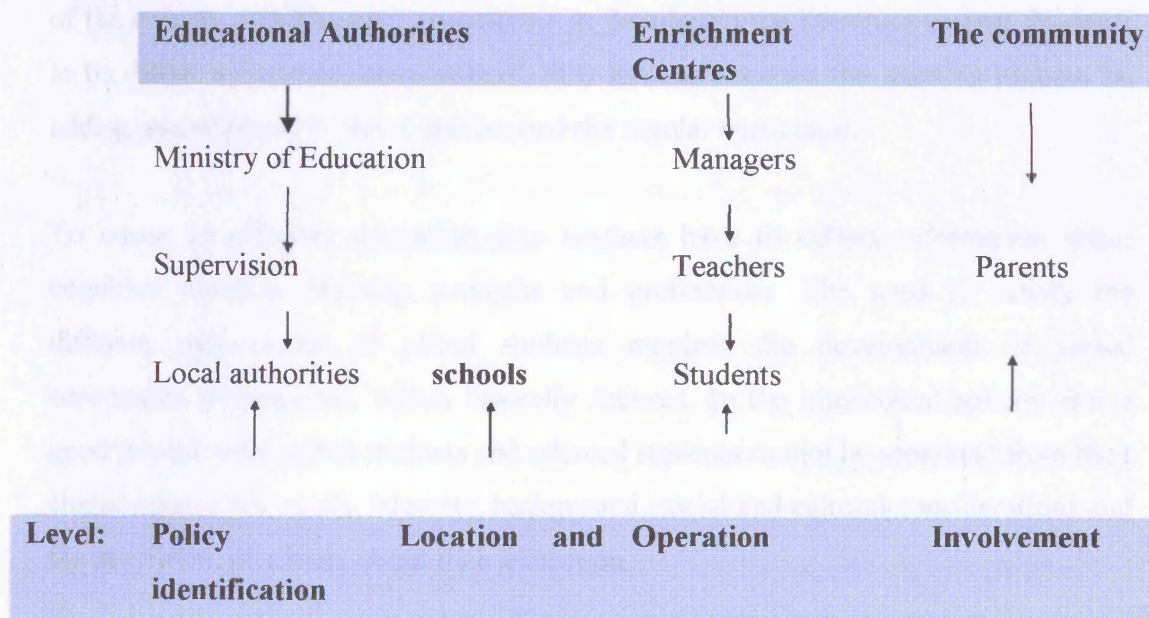
1. The organizational structure - the hierarchy of authority is the linear organization of the project. The structure testifies to decision-making regarding objectives and policy at the upper level, from there the decisions are transferred downwards and translated into activities in the centres. In Israel, in small systems, the structure is composed of three to four levels (see section 2.4, figure 2.5). This organizational structure allows comprehensive and less intensive control, permitting freedom of action and broad delegation of authority to the centre managers. This reinforces their motivation and encourages them to achieve the goals of the project. Such an organization demands that the managers be well trained, have professional ability, and know how to reach independent decisions.
2. The communication system (interpersonal relations between the supervisor and the managers and between managers and centre teachers).
3. The human range, including the gifted students.
4. The professional knowledge (of the teachers) and the quality of the curricula.
5. The management pattern (of the managers) - autonomous, accepting responsibility and taking the initiative.
6. The cohesion of the managerial staff (led by the supervisor), which contributes to a feeling of satisfaction and to impressive results.
7. The level of motivation, reflected in motives, positions and behaviour of the partners in the project, traits expressed also in the degree of identification with the goals of the programme.
8. The students chosen for the project are being labelled as “better” than others, and this strongly encourages them and their parents to support the programme. It may

implies to elitist perceptions (see section 1.3.1).

9. The commitment of the stakeholders to the enrichment programme is part of the success. That is attributed to the concepts of reputation and esteem related to the recognition of the project within the community, and its receipt of public sympathy.

Survival is a result of the many years of success of a stable system. Organizations with decades of experience tend to become entrenched in certain work habits which have proven themselves as successful in the past. This degree of conservatism proved itself regarding the goals and aims of the project (as stated at the time of its establishment) but a degree of innovation must accompany the process, adopting educational initiatives, new enrichment programmes and operation of varied technological means, to suit the changes occurring in the surroundings. The fact that the project survived for so many years, with such stable objectives and rationale, shows the great trust in its contribution on the part of its initiators, operators and clients - the stakeholders - who can be divided into three groups on different levels as shown in figure 6.1.

**Figure 6.1 The Stakeholders – Divided into Three Groups**



The discussion of the second research question will include three components:

The centre manager, the teacher and the enrichment programmes.

### **6.3 Making decisions by the managers about the enrichment programmes and defining them to the teachers**

The list of criteria for evaluating curricula is based on objectives, principles and characteristics of the curricula. The models of Goodlad (1979) and Silberstein (1984), which were chosen as the theoretical framework of the educational curricula, relate to preparing enrichment programmes for the gifted population, using the same process.

Teachers have to begin with the ideological perceptions and objectives guiding the enrichment programmes through enrichment activities, mutual relations between the teacher and the student and ending with the behavioural changes of the gifted students.

The researchers Maker (1982) and Rogers (2002) suggest that mainstream school should satisfy the needs of the gifted students. This issue is controversial and schools could possibly meet these needs, but they would have to change in many areas such as: administrative, organizational, pedagogical, and the increased involvement of the parents. In my opinion schools can not fulfill this assignment as I have explained in the section about enrichment programmes (see page 108). Therefore the teachers of the centres have to construct independent teaching plans, emphasising the significance of the concept "enrichment" programme as detailed in the literature review. In order to be called 'enrichment programmes', they have to improve the learning process by adding something to it, above and beyond the regular curriculum.

To create an effective education plan teachers have to collect information about cognitive function, learning strengths and preferences. The need to satisfy the different multi-talents of gifted students required the development of varied enrichment programmes, which basically focused on the intellectual sphere. But a good provision for gifted students and talented students cannot be separated from their characteristics and needs, interests, background, social and cultural considerations and the perception of society about their education.

The theoretical models for gifted students recommended by the researchers Renzulli (1977) and Marland (1972) supported enrichment programmes for gifted students aimed at aiding in realisation of the gifted students' potential. However, Marland's definition has a number of limitations: there are no connections between the

categories described (see page 83) and the model ignores the motivational factor which is important personal trait to fulfil the potential of the gifted students. On the other hand, Renzulli's three stage enrichment model is the most widespread and the use of the third stage of the model is implemented in enrichment programmes. The centres choose to use the basic principles found in Renzulli's model. The basic assumption determines that exposure to enrichment programmes should testify to skills which may not have been discovered or realised if the opportunity to be in an appropriate nurturing framework had not been provided to them. This is in keeping with Tannenbaum's (1986) way of thought, which discusses the environment and the circumstances of the gifted students' participation in a framework that suits a given time in their life.

Renzulli's model contains three stages. The third stage is oriented to the gifted students. He recommends:

1. Cultivating the cognitive abilities of the gifted student, which include investigation and problem solving.
2. Cultivation of creativity for which the gifted student requires a flow of original ideas.
3. Fulfilling of potential requires nurturing of personal traits, such as motivation and commitment, in order to turn the gifted student into an independent and autonomous learner.

The above three points are the central idea behind my recommended model, which include the three factors that comprise Renzulli's model for defining giftedness.

These recommendations serve the centres' managers, whose role is to choose the enrichment programmes, as guidelines in examining the topics to be implemented. In the Findings (chapter No. 4), the centre managers stated 12 planning considerations including: creativity and development of cognitive thought (Table 4.2) that are appropriate subjects for the gifted students. They presented to the teachers 7 definitions (Table 4.3), centred on: exposure to new areas and unique topics that suit the criteria of enrichment. The centre managers have to require from their teachers to form different programmes, so that it will challenge the gifted students.

Despite the centralised character of the Israeli educational system, we are witness to a new diversified process of developing curricula by autonomous teachers, in accordance with the needs of the different target populations.

The curricular planning outlook as a diversified process is based on the principle of alternatives. At all stages of the process, the teacher is at the crossroads of the decisions that must be made regarding content, study material and assessing the products of learning (see figure 2.6). This is the principle leading the educational system towards a stated policy of encouraging trends towards autonomy, which create teaching situations that respond to the needs of the students.

Many researchers in the literature have discussed the characteristics of the teacher and his suitability for teaching the gifted students (Barbe and Renzulli 1975; Lee-Corbin and Denicolo 1988; George 1995; Freeman 1995; Montgomery 1996; Porter 1999; Rogers 2002). They described the effective teacher, his image, traits, function, and system of relation between him and the gifted students.

According to the findings the teacher within the enrichment centre framework is aware of the objectives of the project and enjoys professional freedom in making decisions. In the literature they are called 'autonomous teachers', who developed an enrichment programme and are committed to suiting it to the gifted students. They need to have good skills, in order to achieve a high quality level of teaching, in order to satisfy the special needs and the traits of the gifted student, and to fulfil the expectations of the educational system of the community, the supervision, the centre manager, the gifted students, and their parents – the stakeholders.

The data in the findings (chapter No. 4) show 19 considerations that led teachers to choose the topic of their programme (Table 4.5). Most of the responses related to curiosity, creative thought, investigation and problem solving, which are connected to the traits of enrichment programmes.

From among the responses of the students in the present research regarding the image of the teacher, it may be concluded that teachers who teach in the enrichment project do in fact fulfill these requirements.



The research findings lead to the conclusion that pupils persevere and participate in the clubs, which reinforces the assumption that the pupils accept responsibility for their studies. The framework, which includes no obligations (tests or grades), creates a unique system of teacher-student relations. This increases the students' motivation to realise their potential.

Enrichment clubs are also a social framework in which students create ties with other students who have common areas of interest. Participation of gifted students in special programmes increases their academic knowledge. They need contact with other intellectual students for exchanging ideas, sharing interests, discussing problems, exploring solutions and getting advice and help. They described it was enriching to meet others of their own kind, to work together with great challenge and enthusiasm. Their presence in the regular classroom with students of the same age was helpful to their emotional development, but they needed to spend part of their time with true peer groups who are at the same development stage. Successful learning helps gifted students to achieve control over the learning situation and become more aware of their abilities.

In summary: According to the findings, the main obstacle that prevents the continued development of education for the gifted students is creating curricula for them, curricula based on the individual needs of the gifted. Developing curricula has been done to date in Israel in a fragmented fashion, and under local initiatives. Most of the programmes emphasize the scientific subjects and offer too few choices. There are few written and detailed curricula that enjoy broad distribution and there is no government or commercial body to distribute curricula that have already been developed in order to bring them to the attention of those who are interested.

#### **6.4 The satisfaction of the Gifted students**

##### *Location and identification*

Location and identification of students for the programmes depend on information about gifted potential and talented performance and are done by collecting objective data (tests) and subjective data (recommendation of parents and teachers' check lists). When we talk about higher abilities in terms of IQ scores we refer to results attained in tests. IQ tests provide a single score as a measure of intelligence and those who

support this approach have claimed that it is objective and the most accurate predictor of the potential for doing well academically. However, in my opinion, there is some sort of subjective perception when ever one human is being measured by another; the whole validity of IQ as a concept has been undermined and this becomes open to a long debate about heredity versus environment. The IQ oriented view of giftedness dominated the gifted issue for many years. Those who oppose the quantitative approach have claimed that:

- a. IQ tests can never be entirely objective because they are the product of people.
- b. test results which determine children's IQs may become a label accompanying them throughout their lives.
- c. they cannot predict the success of children over the course of their lives.
- d. there is a discrimination against different population groups and races as a result of measuring social values which are not known to them.

According to them, high IQ does not offer any practical basis for identification. I agree with their argument that identification solely by the use of IQ tests may be wrong and may ignore language, culture, race, family and environment aspects.

The location and identification process in Israel is based mainly on IQ tests. Over the years, the policies of the Ministry of Education have been moving towards naturalistic assessments. In 1995 the chief scientist of the Ministry of Education offered changes in the entire system. The IQ theories have been replaced with new multi-dimensional theories which explain giftedness as a result of interaction of intellectual abilities, personal-social characteristics and socio-cultural influences. Unfortunately the new policies didn't last long and the IQ testing system was brought back.

In summary: In recent years, the multidimensional approach has developed, relating to thinking in terms of interdisciplinary thought, encouraging social thinking and futuristic thinking, which includes the creation of new knowledge that the gifted individual must cope with in a changing reality. This approach led to a change in the issue of identifying and locating gifted children and guides the development of enrichment programmes which were suited to the areas of interests of the gifted students.

### *The gifted students*

Israel is a small country with few natural resources. The intellectual abilities of its people are its most precious asset. Cultivation of the gifted students in Israel is based on two basic assumptions related to two guiding principles of public life: the first principle is the principle of equality - the children's right to receive an education which suits their needs, abilities and skills in order to prepare them for effective life. The second is the principle of promotion and development which determines that their potential will be available to society. As a result of its stated policy, the educational system has succeeded in determining a scale of priorities, organising action plans, and providing the resources necessary for the various frameworks at the appropriate time in order to allow the gifted student an environment suited to effective learning. As mentioned above the main problem is a fragmentary development of the curricula.

The need to satisfy the unique needs of gifted/talented students is recognized today in most countries worldwide because of the right of the gifted student to receive education suiting their abilities. However, the field of education dealing with cultivation of the gifted students is rife with disagreement. Part of the conflict is related to the perception of who is a gifted student. What are the traits and characteristics that set the gifted student apart? What is the threshold of giftedness? What are the elements of giftedness? In addition, what are the methods for locating and classifying the gifted? The basic points of contention are the questions: **Is there justification for investing in special education for the gifted student? Is the gifted student eligible for cultivation?** (Requiring budgets, personnel, buildings, etc). Those who oppose such cultivation claim that any investment will increase the gap in the gifted student's favour and will create an "elite" group. On the other hand, the supporters have decided that every society must provide a fair response to the talented student, including effort to realise their potential. This is a long-term investment in the development and promotion of society, and a democracy is tested in its ability to educate its future leaders.

The section about the gifted student includes answers to three questions:

1. Who are the gifted students and how we can identify them?
2. What are the types of giftedness? In which areas of human ability children are recognized as gifted?
3. How should we cultivate the special needs of the gifted students?

In their models that defined "giftedness", researchers related to heredity, personality traits and environmental factors in the development of the gifted child. What is common to all of the definitions of giftedness is high intellectual ability. What are common to some definitions are specific academic skills – related to defined areas of content and scholastic achievements (Marland 1972, Milgram 1976, Tannenbaum 1986).

The quantitative approach that was described in section 2.5.3 relates to the genetic factors, which determined that giftedness is inborn, stable and permanent over time. This leads to the idea that there is no reason to invest in the cultivation of gifted students or to try to raise their IQ. In my opinion, they showed one sided thinking, in arguing that only what may be measured through IQ tests is true and relevant. Consequently, they were expanded by other measurements such as the Multi Intelligence theory of Gardner (1992).

The qualitative approach that was described in section 2.5.3 added to the definition, cognitive, social and environmental components. Expansion of the definition proved that there exist areas and abilities that we may not measure, such as motivation and creativity (Renzulli, 1978; Guilford, 1956), but without which the gifted individual may not fulfill his potential.

The innovative component of Renzulli's model is the motivational component which contributes to characterising a qualitative difference, and is lacking in the traditional definitions that focused on cognitive ability and creative skills.

Realization of the gifted potential is determined by researchers in different manners:

1. Guilford (1956), Milgram (1976), Renzulli (1978) and Tannenbaum (1986) claim that the realization of potential depends on a combination and integration of the components mentioned in their models including random opportunities and luck.
2. Gardner (1992) determines that social and culture circumstances affect realization of potential and achievement of extraordinary results in the areas of intelligence in which one is gifted.
3. Gagne (1995) argues that intellectual giftedness, which denotes high intellectual potential, may be hidden, but is a necessary condition for achievements and talents. He claims that the catalysts, which include internal factors (the gifted individual's personality) and external factors (the environment) develop the gifted individual's

potential through performance.

4. Sternberg (1985) claims that practical giftedness relates to the level of ability to apply thought processes in daily life. I think this suits the ability of the gifted student to deal with problems arising via creative solutions – (as Gardner called it, the way of absorbing and transmitting information or expressing attitudes and emotions in a certain cultural framework).

It can be summarised that fulfilling this potential is affected both by non-intellectual factors, such as: personality and character traits and external factors related to the environment. Environmental characteristics are related to influences which dictate the personality of gifted individuals throughout their lives. It is generally agreed, among researchers, that the family, the home atmosphere, and parental attitudes are the primary factors forming the child's development. The second most important factor is the school. Its role is to show awareness regarding the gifted students' needs: enrichment, grouping or acceleration. The third stage is characterized by the influence of society and culture over fulfilling the gifted students' potential and their contribution to the community.

Creativity and creative thinking appear in a number of different structured models. Guilford connects creativity to the cognitive process and calls this diversified thought. In Renzulli's model it appears as a component that is not intellectual, whilst in Sternberg's model it is found in synthetic giftedness. The difference stems from two outlooks in relation to the concept of creativity that was described in section 2.5.6. One connects creativity to intelligence. The second determines that creativity is a trait different from intelligence and contributes uniquely to the level of scholastic achievements. I referred to creativity as a different concept from intelligence because of the importance of the creative abilities that have to be cultivated separately from the intellectual area. This is the reason that in my recommended model, it appears in the first circle as one of the three areas of cultivating the gifted students.

The most comprehensive model that was mentioned in the literature review is that of Gagne (1995). The table below shows the researchers and the models mentioned over the course of the literature review, as they are integrated in Gagne's multidimensional

model, which comprises and includes the factors defining giftedness and its fulfillment. (See Table 6.2)

**Table 6.2 Researchers and Models**

**Gagne's Model-Top 10% Giftedness = (Innate Abilities) Talent = (Achievements)**

<b>Gagne's Model</b>	<b>Models</b>	<b>Researchers</b>
<b>Domains</b>		
<b>Intellectual</b> (Reasoning, Memory...)	The Intellect Structure "4x4 Model"  "The Triachic Theory" Psychosocial Model	Terman 1925, Spearman 1927, Piechowsky 1979. Guilford 1956, Milgram & Milgram 1976, Renzulli 1978, Eysenck 1982, Sternberg 1985, Tannenbaum 1986.
<b>Creative</b> (Originality, Imagination...)	The Three Rings	Torrance 1962, Marland 1972, Milgram & Milgram 1976, Renzulli 1978, Amabile 1987, Feldhusen & Goh 1995, Nevo 1997, Ziv 1998.
<b>Personal and Social</b> (Self-awareness, Leadership...)	Multi-Skill Definition	Marland 1972.
<b>Physical and sensory</b> (Strength, Flexibility...)		Terman 1927, Hollingworth 1942.
<b>Motivation</b> (Initiative, Perseverance...)	The Three Rings	Renzulli 1978, Trost 1993, Robinson 1993.
<b>Personality</b> (Independence, Traits....)	The Two Axes Model	Gallagher 1966, Eysenck and Eysenck 1968, McClelland 1973, Whitmore 1980, Tennebaum 1986, Ziv 1990, Trost 1993.
<b>Developmental Process</b> (Learning, Practice....)	The Enrichment Model	Hollingworth 1930, Hildreth 1966, Gallagher 1968, Bridges 1973, Renzulli 1977, Davis & Rimm 1985, Sternberg 1985, Rosmarin 1989, Eyre & Marjoram 1990, Landau 1990, George 1995, Montgomery 1996, Shleir and Sheild 1996, David 1997.
<b>Environmental factors</b> (Persons, Provisions....)	"The Triad Model" The Three Dimensions  Multifunctional Model	Bloom 1964, McClelland 1973, Renzulli 1977, William, 1982, Clark 1983, Zixiu 1983, Tennebaum 1986, Sternberg 1986, Milgram 1989, Monks 1992, Rogers 2002.
<b>Skills: Academic, Arts, Social, Sports, Technology....</b>	The Multiple Intelligences	Marland 1972, Gardner 1992.



In my analysis of the students' questionnaire findings, regarding satisfaction with the project, four factors were reported: satisfaction with the programme, satisfaction with the teacher, satisfaction with learning, and satisfaction with acceptance to the programme. In the MANOVA analysis, a comparison was made between three data – differences between genders, differences between age groups, and differences between centres. The findings show:

- 1) Girls report a higher satisfaction than boys regarding the programme and being accepted to the programme. Maybe that they are just more anxious to please when they fill in the questionnaires. This is in contradiction: a) to the findings of a research done by Davis and Rimm, 1985, which discovered that girls participate less in cultivation and enrichment programmes; b) in the opinion of Kerr et al, (1988) who claimed that young girls, during adolescence, are found to be "the under ground gifted" (see section 2.5.5).
- 2) Students in the 6<sup>th</sup> grade show less satisfaction with the programme than 4<sup>th</sup> and 5<sup>th</sup> grade students. Students in 4<sup>th</sup> and 5<sup>th</sup> grades show identical results, while students in 3<sup>rd</sup> grade are more satisfied than all other age groups regarding all of the indices.

In my opinion it is possible that this finding is related to the amount of time the students have been participating in the project. Students of 3<sup>rd</sup> grade, who are participating in the project for the first time, show excitement regarding the content of the clubs, while 6<sup>th</sup> grade students who have been participating for 4 years, may need an increased level of enrichment.

- 3) As to the reviewing between the centres, the only significant difference in any of the factors was the lower satisfaction in centre number 9.

It is possible that this difference is due to the type of population. Most enrichment centres operate in urban locations and this is the only centre which is rural – with students coming from different agricultural settlements.

I think that the findings that were uncovered should be examined in future studies.

### **6.5 The expectations of the gifted students and their parents**

Research question No. 4 related to the gifted students and their parents, and examined coordination of expectations.

Parents of children, including gifted children, play a decisive role in their children's development, because they are a model for imitation and identification. They are the

first link which identifies the child as gifted, discovers the unique abilities that the child shows, and tracks the child's intellectual and emotional development. This is a stage during which parents must challenge their children through discovery and experience, while providing a personal example and input.

In the transition to school the stage of information acquisition begins, and parents transfer "responsibility for educating" of their children to the school and the teachers. This is the stage at which parents must clarify to their gifted children that the school framework serves not only to aid in acquiring knowledge, but also help in creating social ties with peers, something which will aid in their emotional and social development.

In the literature review, a number of models have been described in which the school and the family appear as part of the definition of the giftedness and its realization. Milgram (1989) added three frameworks to the giftedness model: home, school and community. Monks (1992) added three factors to Renzulli's model: family, school and friends. These also appear in Tannenbaum's Psychosocial Model (1986). In Gagne's model (1995) the family unit and the educational system are found as part of environmental factors which mediate between the gifted child's hidden potential and the realization of this potential.

The conclusion drawn by me is the common one that parents have to be involved in their child's education. Teachers need to accept parents' assessment of their children's interest and abilities and welcome their involvement. Rogers (2002) largely agreed with this. She wrote her book "Re-Forming Gifted Education", as a guide for parents and teachers. Parents must aid in creating their children's educational programmes in collaboration with teachers in different areas of the school. The programme must be challenging, enrich areas of interest, and motivate gifted students to fulfill their abilities.

I think that parents of gifted students have to recognize the fact that regular schools do not satisfy the individual gifted child's needs (because of the egalitarian-moral principle, size of the group, curricula, and budgets), and therefore they must accept the role of developing the type of giftedness identified in their children. Their role is to search for an extracurricular framework that will satisfy these needs. Parents have

to be prepared to invest additional “own resources” in order to provide their gifted children with the best education possible. The problem which may arise is funding the enrichment clubs – many families find it financially difficult to pay the costs of them and this is one of the roles of the enrichment centres, to provide a response to the needs of gifted students at a cost that parents are able to pay, with the Ministry of Education (via the Gifted Children’s Department) making up the difference.

During the process of applying the educational programme, parents should listen to the gifted students' reports and share in their experiences. One finding of the present research is that students do in fact involve their parents in topics that they have learned and the enjoyment that they receive within the enrichment project framework. Parental involvement in the educational system is low, as described in the literature - section 2.4.3. Studies support the fact that there are many factors causing opposition/conflict between parents and the educational system (Noy, 1992), which prevent cooperation between the home and the school (Saar, 1995).

From my research findings one may learn that:

- 1) The high level of taking initiative and high level of inclusion in activity of the centre show that there is an attempt on the part of the centres to create a system of an ongoing decision-making process.
- 2) Parents receive information about the programme, but this means a low level of involvement.
- 3) Low involvement among parents, stems, in my opinion, from the fact that the centres do provide an appropriate response to the gifted students, and parents trust, the project managers, teachers and the enrichment programmes. I think that parents need to be more involved especially in the activities arranged by the centres.

In recent years, in Israel a change has occurred in parental involvement in the educational system (Goldberger, 1991). Parents find themselves visiting and examining the frameworks their children learn in, in order to create a positive climate. This involvement can also provide the students with additional educational services.

The success index achieved from the parent's findings is 9 on a scale of 1-10; that proved that the project fulfil their expectations.

## **6.6 The influence of various factors**

The fifth research question related to factors that are problems. The problems that were raised and have not been solved included: a. lack of involvement of teachers in the process of creating groups, b. availability of teachers, c. small centres d. teachers' salary, e. geographic distance, f. teachers' absences g. geographic distance, h. lack of equipment i. competition with other companies for the leisure hours of the students.

None of the problems is seen as being the 'fault' of the people I asked, but awareness of these problems may bring the educational system to cope with it by increasing the budget for teachers' salaries and offering higher compensations for travel expenses and time to teachers coming from a distance.

## **6.7 Summarising Discussion of the Model**

At the end of the literature review, I recommended a model that includes the components of the definitions of giftedness as expressed in the various theories. The rationale behind the recommended model is fulfilling the potential of the gifted student according to the meta-goals of the Ministry of Education on the issue of cultivating gifted students (see chapter 1 page 13).

At the centre of the model stands the gifted student, surrounded by circles which contain the components which play a part in his or her cultivating.

The first circle relates to the goals determined in the enrichment centres upon creation of the project in 1983, which do not ignore the intellectual abilities and high scholastic achievements of the students, yet are not satisfied solely with these. The circle includes three areas: intellectual cultivation, cultivation of creativity, and cultivation of personality traits. Intellectual cultivation appears in all models described in the literature review. Some models add creativity as a central factor, and some models mention that without cultivation of personality elements, such as motivation, commitment and responsibility, students' potential may not be realized.

Cultivating is a process of dialogue which is shared by the gifted students, their parents, teachers, principals and the educational systems. The innovation of the recommended model is in the two additional circles which contain the stakeholders connected to the project.

The second circle includes the centre managers, teachers, enrichment programmes, educational environment, and the parents. These are the direct factors responsible for cultivating the gifted student.

The third circle includes the educational systems, supervision, community, external bodies related to the project according to their job definitions, and the elementary school principals, who, according to the research findings, are not partners in the enrichment process and only selected the students for the centres.

My research findings show that an inseparable part of success of the project is related to the involvement of all stakeholders, in all stages of activity; an involvement that I think must be reinforced in the future.

**In summary: in my opinion the model that I have recommended may serve as a prototype for establishing additional enrichment centres.**

## **6.8 Practical Implications**

The research findings and requests of stakeholders point out several practical implications.

1. **Resources centre:** Setting up a resources centre that will be funded by public (philanthropic) bodies, and will include: a library, a computer room, a laboratory, and a meeting room.
  - a. The centre should organize curricula, study material, and knowledge resources, which will provide data to managers and teachers.
  - b. The centre should initiate cooperative projects with institutes of higher education.
  - c. The centre should absorb students from teaching colleges for a year of internship within the framework of working with the talented.
  - d. The centre should create ties with departments for the gifted abroad obtain and provide material, including translation of the relevant topics.
2. Constructing an Internet site including general information on or about the centres.
3. Unification of a number of small centres, which will lead to a higher budget, allowing the acquisition of special programmes, increased enrichment activities outside the centre and increased salaries.

**The disadvantages of this recommendation** are related to two parameters:

1. Transportation to the common centre (high costs).

2. Refusal of the communities to give up on the local, highly esteemed, project.
4. Four original goals were formulated for the enrichment project (page 19); to them we have to add detailed behavioural goals – as mentioned in the recommended model.
5. The centre managers and teachers have to be aware of innovations and changes expressed in varying the topics.
6. To raise the threshold of acceptance and pay attention to the subjective dimension existing in recommendations, while using more strict examinations of suitability.
7. To create a system of reporting and evaluation in each centre.
8. Recruiting teachers with unique interdisciplinary programmes.
9. It is important for the teacher to specialize in the psychology of the gifted student.
10. Creating professional training systems for teachers and meetings of colleagues to exchange ideas that will enrich the teaching team.
11. It is important for the teacher to be trained in planning and developing the enrichment curricula according to agreed upon rules.
12. Obtaining additional budgeting and raising the teachers' salaries.
13. Increasing the number of hours which seems to be low in comparison to needs of the gifted.
14. Increasing the number of enrichment activities outside of the centres.
15. Involvement of elementary school principals in the project behind the location process.
26. Additional parental involvement – giving them information about courses, topics of subjects and inviting them to visit the classes in the centres and participate in centres' activities.

## **6.9 Limitations of the Study**

- 1) The use of the local educational environment can have advantages-having the knowledge and the details as an insider researcher; but it can be an opening for bias that could lead to the researcher making assumptions and to take some situations for granted in the work process of the centres.

The research could have been performed in a educational environment different from that which was studied, unfamiliar to the researcher, and in this way limit the possibility for this type of bias.



- 2) The model recommended in the research examines a specific educational environment – enrichment centres in the North of Israel - and not a number of educational environment and therefore there is a limitation in applying it in other places.

In future researches should be possible to test if the recommended model might be suitable for other educational frameworks.

- 3) The limitation that relates to measurement scale. The use of ordinal scale in the study, sometimes, the total score of an individual does not reveal details and has little clear meaning. The numbers represent ranking only, so addition, subtraction and other arithmetic operations have no meaning. The scores differ in position by one (1; 2; 3); there is no "true" zero point for ordinal scales since the zero point is chosen arbitrarily. The ordinal scale doesn't specify the distance between each item. It just puts them in order. However the intervals between the numbers are not necessarily equal. We can 'rank' ordinal data but we cannot 'quantify' differences between two ordinal values. The ordinal data uses non-parametric statistics such as: median and mode; percentage; range and chi square.
- 4) In the test of reliability that took place after analysis of satisfaction and coordination of expectations, a number of the factors were found to have lower reliabilities than the general standard of 0.7 determined by (Nunally, 1978), after removing the factors which contributed to reduction of the reliability (question 12 in the Pupils' Questionnaire). The time limit prevented corrections of the questionnaires and repeat of the work.

What is lacking in the present study?

- 1) There is room to examine the impact of the enrichment clubs on the regular educational system and the views of non-selected students and parents.
- 2) Gifted students, who were studied in 1994 in a study ordered by the National Centre for Tests and Evaluation, stated that they greatly value the impact of cultivation and enrichment over their intellectual development. There is room to consider the idea of a continued study to examine the achievements of students who participate in enrichment centres in the 10<sup>th</sup> - 12<sup>th</sup> grades, as they take their Matriculation exams. The study will have to prove whether participation in the enrichment centre in the early years contributed to high grades in the final tests.

- 3) There is room to consider the idea of a continued research to study how the gifted students, who participated in enrichment centres, fared after their graduation, compared to others.
- 4) The dimension of comparison, we cannot compare the programme to other projects in Israel because the project is unique to the Northern Region, in communities served by Educational Welfare Department.

In summary: The research took place with a number of statistical limitations and cultural biases. In future research these limitations must be considered.

### **6.10 In Summary**

Upon completion of the present study and after analysis of the findings, I can determine that the enrichment project in the North of Israel has achieved its goals and satisfied the expectations of the stakeholders, including the satisfaction of the gifted students' needs. Worldwide recognition is increasing regarding the importance of investment in cultivation of the gifted/talented students. The scope of cultivation projects has grown, despite the differences of opinion. Almost certainly this will continue for many years to come.

The contribution of the present research is in the following three fields:

#### **1. Theoretical contribution – the recommended model.**

The recommended model is the result of an evaluative research which took place in enrichment centres. The central goal behind it is to allow gifted students to enjoy nurturing that satisfies their special needs in different areas. In order to take maximally take advantage of the gifted child's potential it is necessary to ensure a unique enrichment programme, whilst creating an educational environment and atmosphere that are challenging and will make learning into an enjoyable experience. The stakeholders: parents, centre managers and parents, are required to encourage realisation of the high potential of the gifted children. The stakeholders involved in the project: supervisors, school principals and managers of educational authorities, must emphasise awareness of the special needs of the gifted population while determining that excellence is a central aim in every progressive society which aims to enjoy the long term achievements of the gifted.

2. Methodological contribution – in practice, researchers often adopt a model that is a combination of the two approaches – quantitative and qualitative in order to reinforce the findings. The quantitative method creates objectivity, precision, reliability and generalisation, which may be measured through statistical analysis, whilst the qualitative method is subjective, but detailed and provides significance to the opinions of the respondents and interviewees. The two methods complement one another and allow the conduction of a comprehensive research.
3. Practical contribution – to continue the enrichment programmes in the centres, taking into account changes that occur. In addition, it is necessary to list long term aims for providing tools of interdisciplinary thought for creative resolution of problems in the future, the development of an overall outlook allowing identification of different aspects of various phenomena and cultivation of the ability to consume information in a critical and effective manner.

Cultivation of the coming generation requires finding a variety of solutions suited to the unique needs of each student, including the gifted ones. This commitment must be included in the priorities of the Ministry of Education, and discussion of it must be part of its future agenda.

A well-known adage in Jewish tradition says: “A person who learns the Bible and does not teach it, is like a myrtle in the desert who has no one to enjoy it”. This study grew out of 19 years of activity in the sphere of cultivating the gifted. A study whose ideas are not applied remains as an unturned stone. This study has been proven to have achieved its goals and have maintained its objectives.

I hope that I will be able to convince my colleagues in the educational system to include the project in additional regions in Israel, and to add courses in teacher training colleges on - developing curricula for the gifted.

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## **Appendices**

### **Appendix 1**

#### **Interview questionnaire for the regional manager of educational welfare**

1. What was the idea that led to the founding of the CSK programme?
2. Who were the bodies involved in the decisions?
3. How is the project budgeted in the region?
4. In your opinion, what are its goals?
5. What population is the project aimed at?
6. Does it seem correct to choose the CSK students using the recommendations of class tutor teachers, teachers and consultants?
7. What skills do you want to find in a centre manager?
8. What teachers do you feel should be teaching in the centres?
9. What are the criteria for the curricula of the centres?
10. Do you feel that the physical environment of the project in every city is important?
11. Every year there is an examination in every city regarding the continuation or cancellation of the project. What is your opinion on the matter?
12. What is your involvement today, and in what way are you updated on what is going on?
13. In what way do you receive feedback/reports on what is going on in the centres?
14. Has comprehensive research taken place over the years regarding the project?
15. How do you explain the existence and the perseverance of the project since the 1980s?
16. How do you summarize the years of activity of the project?

## **Appendix 2**

### **Questions for an interview with the regional supervisor**

Name of Supervisor: \_\_\_\_\_

Region: \_\_\_\_\_

Number of Clubs responsible for: \_\_\_\_\_

A. Number of the participants in the gifted children's programmes. According to your experience, please relate the number of participants in a typical club for gifted children:

1. Usually, \_\_\_\_\_ students begin the programme.
2. Usually, \_\_\_\_\_ students drop out
3. Usually, \_\_\_\_\_ students join in the middle.
4. Usually, \_\_\_\_\_ students finish the club.

B. 1. With what frequency are there problems discovered in the functioning of the gifted children's club operators (counsellors, teachers, etc.). Circle the appropriate answer.

- i. In more than 50% of the cases.
- ii. Between 25-50% of the cases.
- iii. Up to 25% of the cases.
- iv. There are usually no problems
- v. I don't know

2. Give examples of frequent problems:

\_\_\_\_\_

C. 1. Which of the gifted children's clubs under your responsibility work according to a preplanned programme. (Circle the appropriate answer).

1. All of the clubs have a preplanned programme.
2. Many clubs have a preplanned programme.
3. Few clubs have a preplanned programme.
4. None of the clubs has a preplanned programme.
5. I do not know.

2. To what degree do the preplanned programmes usually get performed?

(Circle the appropriate answer).

1. The programme is always performed.
2. The programme is often performed.
3. The programme is not often performed.
4. There is no programme.
5. I do not know.

D. How would you define the goals of the CSK programme?

E. What is your policy regarding the educational curriculum that is used in the centres?

F. How would you evaluate the success of the gifted children's centres in the following areas? (Put an x in the appropriate section for each area of the table).

Areas	Very successful	Fairly successful	Slightly successful	Not successful
1. Advancing students in their studies.	_____	_____	_____	_____
2. Creating social consolidation among the students.	_____	_____	_____	_____
3. Increasing the self confidence of students as students.	_____	_____	_____	_____
4. Increasing educational motivation.	_____	_____	_____	_____
5. Expanding the students' horizons.	_____	_____	_____	_____
6. Other _____	_____	_____	_____	_____
7. Other _____	_____	_____	_____	_____
8. Other _____	_____	_____	_____	_____

G. Describe briefly the common problems and difficulties related to the gifted children's centres under your responsibility (including administrative and financial, operation, local operators, supervision, target population, etc.)

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H. What changes would you make to improve the gifted children's clubs? (Content, administrative, theoretical, etc).

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I. What system of reporting is used today in the programme?

Telephone reporting from the operators	Yes/No	Frequency _____ monthly
Visits in the field	Yes/No	Frequency _____ monthly
Written reports	Yes/No	Frequency _____ monthly
Other _____	Yes/No	Frequency _____ monthly

J. Note the name of the programme(s) that you are familiar with that are similar to the gifted children's clubs.

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### **Appendix 3**

### **Questionnaire for a structured interview with the educational welfare manager**

#### **1. General**

- i. What programmes do you organize?  
\_\_\_\_\_
- ii. Which ones are connected to the Department of Gifted Students?  
\_\_\_\_\_
- iii. In the framework of the gifted childrens' programme, how many clubs are your responsibility?  
\_\_\_\_\_

#### **2. Goals**

- i. What are the goals of the programme? (Main, secondary)  
\_\_\_\_\_  
\_\_\_\_\_
- ii. Have the goals of the programme been defined to you? By whom?  
What were the instructions?  
\_\_\_\_\_  
\_\_\_\_\_
- iii. Have you been trained for or during running the programme? Which?  
What was done?  
\_\_\_\_\_
- iv. Do you have special goals for you and the needs of your city?  
\_\_\_\_\_
- v. How have you defined the goals to the project manager?  
\_\_\_\_\_

#### **3. Role of the educational welfare organizer**

- a. How would you define your role?  
\_\_\_\_\_
- b. Who tracks the work of the groups?

- c. In what way is tracking done?
- |   |        |                 |
|---|--------|-----------------|
| 1) Your visits                            | yes/no | frequency _____ |
| 2) Reports from the centre manager        | yes/no | frequency _____ |
| 3) Meetings with local steering committee | yes/no | frequency _____ |
| 4) Meetings with regional committee       | yes/no | frequency _____ |
- d. Is there methodical recording of students' attendance in the groups?
- e. Did you train the teachers/ instructors in the city? In what subjects? How many classes?
- f. Do you set the cost of the programme (yes, no, greatly, somewhat)?
- g. How is the programme budget made up (regional budgeting, local budgeting, parental payments)?
- h. Is the money management of the programme tracked (monthly, yearly, not at all)?

#### **4. Building groups**

##### Starting groups

- a. How was it decided where to start a group and on what subject?

##### Choosing students

- a. Describe the process of choosing students for the programme:
- 1) What were the criteria?  
Who defined these criteria?
  - 2) Who referred the students to the programme?  
Were all of the students accepted?
  - 3) According to what criteria were the students in the groups chosen?
  - 4) How many students were referred? How many students were accepted?
- b. 1) What is the makeup of the students in the groups? (is there variety, degree of homogeneity/heterogeneity in the group according to age, gender, school, neighborhood, etc.)
- 2) Are there noticeable differences in the groups' make-ups?
- c. 1) According to what criteria were the groups constructed? (age, educational level, demographics, interest in the club, skills, etc.)
- 2) Describe the process of building the groups (who decided and how).
- d. Is there already dropping out from the group at this stage? How much? Reasons?



### Choosing teachers/instructors

- a. Who chooses the teachers/instructors?
- b. According to what criteria are the teachers/ instructors chosen?
- c. Who set the criteria?
- d. What was the process of choosing them? (Personally approach, open tender)
- e. How many candidates applied and how many were accepted?
- f. Who are the teachers/ instructors who teach the groups?
- g. To what degree is there coordination between the professional training of the teacher and the group that he teaches?

#### 1) Regarding the subject that he teaches?

- |                  |                 |
|------------------|-----------------|
| a. in all cases  | c. in few cases |
| b. in most cases | d. not at all   |

#### 2) Regarding the age group that he teaches?

- |                  |                 |
|------------------|-----------------|
| a. in all cases  | c. in few cases |
| b. in most cases | d. not at all   |

### **5. Consolidating the programme**

- a. Has a curriculum been consolidated for the present year? detail (yes, no, partially).
- b. Who consolidates the educational curriculum?
  - 1) The regional supervisor
  - 2) The educational welfare manager
  - 3) The centre manager
  - 4) The local steering committee.
- c. Who authorizes the programme (regional supervisor, local education manager, educational welfare manager)?
- d. Is there follow-up regarding its application (yes, no, partial)

### **6. Bodies and ties which are involved and have influence** (on the group and the educational welfare manager).

- a. Table of connections with the educational welfare manager

	Regional Supervisor	Educational Welfare Manager	School Counsellor	Centre Manager	Teachers/Instructors	Parents
Yes/No						
Type of tie*						
Frequency per month						
*Type of tie: reporting, telephone, visit, meetings, training lessons						

- b. To what degree is there a tie between the teachers, counsellors and the school teachers?
- 1) Usually a strong tie
  - 2) Usually a weak tie
  - 3) Usually no tie
  - 4) Do not know
- c. To what degree is there a tie between the teachers/instructors and the parents?
- 1) Usually a strong tie
  - 2) Usually a weak tie
  - 3) Usually no tie
  - 4) Do not know

## **7. Performance of the programme**

- a. Problems in the field: \_\_\_\_\_
- b. Recommendations for improvement: \_\_\_\_\_

### **8. Educational welfare manager questionnaire**

Name: \_\_\_\_\_ Last Name: \_\_\_\_\_ Age: \_\_\_\_\_ Gender: M/F

1. High school education

2. Higher education: mark an X in each appropriate answer:

\_\_\_ Teaching degree/certified counsellor

\_\_\_ Senior teaching degree

\_\_\_ B.A. detail \_\_\_\_\_

\_\_\_ M.A. detail \_\_\_\_\_

\_\_\_ other detail \_\_\_\_\_

3. Previous experience (in brief, what and how much)

a. Teaching \_\_\_\_\_

b. Leading groups \_\_\_\_\_

c. Training teachers \_\_\_\_\_

d. Organization (management) \_\_\_\_\_

4. How long have you been working as an educational welfare manager?

#### **Appendix 4**

#### **Questions for an interview with the manager of the gifted children's centre**

1. Name of the manager: \_\_\_\_\_  
Position \_\_\_\_\_  
Age: \_\_\_\_\_  
Education: \_\_\_\_\_  
Experience: \_\_\_\_\_  
Scope of Position: \_\_\_\_\_
2. Name of the centre: \_\_\_\_\_
3. Days of activity: \_\_\_\_\_ Hours: \_\_\_\_\_
4. Which bodies are involved in the programme?
5. Type of population in the city: established/ average/ neglected.
6. Total number of students:
7. Schools that "feed" the centre:

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

8. Name of the clubs that are run:

Teachers	Sciences - club	No. of Students	Teachers	Arts - club	No. of Students

9. Number of meetings for each club: \_\_\_\_\_
10. Project budget – Ministry of Education \_\_\_\_\_ %  
 Local Authority \_\_\_\_\_ %  
 Parents' payments \_\_\_\_\_ %
11. How are the following run: Registration \_\_\_\_\_  
 Payment \_\_\_\_\_
12. How are the clubs chosen?  
 \_\_\_\_\_
13. a. How do you define the goals of the gifted children's programme?  
 b. What is your policy regarding educational curricula?  
 c. How do you define the unique curriculum for the gifted students?
14. According to what considerations do you plan the school year?  
 (Policy and Definition)  
 \_\_\_\_\_
15. Who is involved in annual planning of the project?  
 \_\_\_\_\_
16. Do you prepare a yearly/half yearly programme?  
 \_\_\_\_\_
17. What does the curriculum include?  
 \_\_\_\_\_
18. Do you plan the enrichment activities that will be taking place at the beginning of the year?  
 Examples of such plans: \_\_\_\_\_  
 \_\_\_\_\_
19. What are the criteria that direct you in choosing clubs for the programme?  
 \_\_\_\_\_
20. How do you structure the groups of students in the clubs?  
 \_\_\_\_\_
21. What is the size of the group? \_\_\_\_\_ What criterion decides? \_\_\_\_\_
22. How do you choose teachers/ instructors?  
 \_\_\_\_\_

23. What is their employment process?

\_\_\_\_\_

24. What problems do you have with personnel?

\_\_\_\_\_

25. With what frequency do you uncover problems with the operators of the club:

More than 50%

between 25-50%

less than 25%

usually no problems.

26. Do teachers present educational curricula to the club?

\_\_\_\_\_

27. Do:

a. all of the clubs have defined curricula?

b. Some of the clubs have defined curricula?

c. The clubs do not operate according to defined curricula?

28. How do you track the operation of the programme?

\_\_\_\_\_

29. Do you run a training programme for the teachers of the clubs?

\_\_\_\_\_

30. What are the physical conditions in the centre?

Buildings \_\_\_\_\_

Furniture \_\_\_\_\_

Equipment \_\_\_\_\_

Laboratories \_\_\_\_\_

Computer rooms: \_\_\_\_\_

Art rooms: \_\_\_\_\_

31. How is reporting performed? What does it include?

With the supervisors \_\_\_\_\_

With the local authority \_\_\_\_\_

With teachers \_\_\_\_\_

With school principals \_\_\_\_\_

With school counsellors \_\_\_\_\_



32. How are you in contact with the parents? \_\_\_\_\_

33. Do you use comments, insight and criticism from previous experiences?

How is this expressed? \_\_\_\_\_

34. Describe in short, the problems and difficulties over the course of operation (personnel, money, students, programmes, equipment, etc.) \_\_\_\_\_

**The problem**

**Degree of influence**

	Very great	Great	Little	None
1. Drop outs				
2. Teacher absence				
3. Budget debts				
4. Salary problems				
5. Discipline problems				
6. Equipment				
7. Personnel turnover				
8. _____				
9. _____				

35. How would you evaluate the success of the clubs that you are responsible for in the following areas:

Area	Very great	Great	Little	None
1. Student progress in studies				
2. Social consolidation				
3. Increasing self confidence				
4. Increasing motivation				
5. Expanding horizons				
6. Developing thought				
7. Developing creativity				
8. Improving self image				
9. "Unit Pride"				
10. Other _____				

36. Between 1-10, what grade reflects the success of the programme in your city?

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37. How does the city/community relate to the programme?

---

38. What do you call the “title” of the programme?

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39. What changes would you recommend to improve the gifted students’ clubs?

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40. Are you aware of another programme that is similar to the gifted children’s programme?

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## **Appendix 5**

### **Questionnaire for the teacher/instructor of the gifted children's club**

#### **A. General**

Identification of the club: Topic: \_\_\_\_\_ Meeting Place: \_\_\_\_\_

City: \_\_\_\_\_ Days and Hours/Week: \_\_\_\_\_

Students in the Club: Grades: \_\_\_\_\_

Schools: \_\_\_\_\_

Date of beginning of activity: \_\_\_\_\_

Expected date to end: \_\_\_\_\_

#### **B. Participation of Children in the Club**

Number of students referred to the club at the beginning: \_\_\_\_\_

Number of students that were accepted to the club at the beginning: \_\_\_\_\_

Number of students that were accepted (added) in the middle: \_\_\_\_\_

Number of dropouts \_\_\_\_\_

How many students participate in activities today? \_\_\_\_\_

Note the number of participants in your group now on a grade, school and gender level:

Grade: \_\_\_\_\_ students in grade \_\_\_\_\_  
\_\_\_\_\_ students in grade \_\_\_\_\_  
\_\_\_\_\_ students in grade \_\_\_\_\_

School: \_\_\_\_\_ students in grade \_\_\_\_\_  
\_\_\_\_\_ students in grade \_\_\_\_\_  
\_\_\_\_\_ students in grade \_\_\_\_\_

Gender: \_\_\_\_\_ Boys \_\_\_\_\_ Girls

#### **C. The Club programme**

1. Did the centre manager define the goals of the CSK programme for you? Yes/No
  2. What are the unique goals that were determined by you in the educational curriculum for gifted students?
-

3. The club programme was:

- i. Fixed by you only.
- ii. Fixed by you with the participation of \_\_\_\_\_
- iii. Fixed for you by \_\_\_\_\_

4. The club programme:

- i. Was not preplanned but was fixed during operation.
- ii. Was preplanned but changed in the middle.
- iii. Was preplanned and is operated as such.

5. For the club programme:

- i. No tasks were defined.
- ii. Recommended tasks were defined.
- iii. Tasks were defined that must be performed.

6. Divide the time in the club's programme as you have been working until now:

\_\_\_% for lectures and samples given by you.  
\_\_\_% for an overall group discussion.  
\_\_\_% for independent work (including practice)  
\_\_\_% for group or team work  
\_\_\_% for field trips, etc.  
\_\_\_% for testing previous knowledge (including tests)  
100% total

7. Tasks to perform at home are given:

- a. Never
- b. Rarely
- c. Usually
- d. After every meeting.

8. To what degree are meetings with other groups and clubs included in the group's activities?

- i. Not at all
- ii. Very little      explain: \_\_\_\_\_

iii. Yes, a bit explain: \_\_\_\_\_

iv. Yes, a lot explain: \_\_\_\_\_

#### **D. Follow-up and counseling**

1. To what degree do you maintain contact with the following bodies over the course of the club, and who initiates the contact?

Body	Degree of Contact			Initiator	
	No contact 1	Little contact 2	Strong contact 3	You 1	The body 2
Centre Manager					
School Principal					
Local Educational Manager					
Educational Welfare Manager					
Regional Supervisor					

2. To whom do you turn when the following problems arise?

a. A need for professional counseling in the field in which the club runs:

\_\_\_\_\_

b. Problems with a student's function or behaviour:

\_\_\_\_\_

c. Problems of equipment, space, etc.

\_\_\_\_\_

d. Other: Problem: \_\_\_\_\_ Who do you turn to: \_\_\_\_\_

3. In what areas must you report your activities, if yes, to whom?

a. Student attendance Yes/No To whom? \_\_\_\_\_

b. Meeting content Yes/No To whom? \_\_\_\_\_

c. Operating Difficulties Yes/No To whom? \_\_\_\_\_

d. Changes in the programme Yes/No To whom? \_\_\_\_\_

4. Must you report in any way regarding the group activities?

- i. No
- ii. Yes, two to three times yearly.
- iii. Yes, once yearly
- iv. Yes, every month
- v. Yes, often, once \_\_\_\_\_

To whom do you report? \_\_\_\_\_

5. The report is given

- i. By telephone
- ii. Conversation
- iii. In writing

6. In your opinion, does the curriculum, including your club, take advantage of the gifted child's potential? \_\_\_\_\_

7. Can you point out cases, events and data from feedback that have proven and reported pleasure and satisfaction among the students? \_\_\_\_\_

8. Describe what your club has succeeded in doing so far: \_\_\_\_\_

9. Describe in short, where there have been problems and a lack of success: \_\_\_\_\_

#### **E. Training and professional experience**

Your education:

- a. Graduate of grade \_\_\_\_\_
- b. Graduate of 12 grades, no matriculation
- c. Matriculation certificate
- d. Certified instructor



- e. Senior certified instructor
- f. Academic degree, which \_\_\_\_\_
- Area of education \_\_\_\_\_

In what framework did you receive your training in instruction?

- i. I have no formal training.
- ii. I have training, from where? \_\_\_\_\_

Previous experience in instruction/ teaching (list number of years and areas):

<u>Number of years</u>	<u>Areas of instruction/teaching</u>

Have you been previously employed in instructing any clubs?

- i. No
- ii. Yes, \_\_\_\_\_ years

Details of the clubs: \_\_\_\_\_

List the types of students who participated in the clubs that you instructed in the past (e.g. gifted, special education, regular education...) \_\_\_\_\_

Note the framework which employed you: \_\_\_\_\_

How many years have you been running this club, or a similar one? \_\_\_\_\_

How many years have you been instructing "gifted children" clubs? \_\_\_\_\_

Did you receive training before beginning instructing the gifted children club?

- a. No
- b. Yes (what and how long) \_\_\_\_\_

How many groups do you instruct today in the framework of clubs? \_\_\_\_\_

- a. Gifted children \_\_\_\_\_
- b. Other clubs \_\_\_\_\_

**F. Personal details**

Gender: M/F

Age: \_\_\_\_\_

Additional employment: \_\_\_\_\_

\_\_\_\_\_ % employment

Comments and recommendations: \_\_\_\_\_

\_\_\_\_\_

Did you answer all of the questions? (Please answer everything.)

I need your name only for follow-up regarding return of the questionnaires:

Last name: \_\_\_\_\_ First name: \_\_\_\_\_

Thank you for your cooperation.

## **Appendix 6**

### **Questions for an interview with the teacher**

Centre:

Manager:

Teacher's Name:

Class:

Children's Ages:

Level of the children:

Name of the Club

Amount of time the topic is taught:

Type of topic: sciences/arts

#### **A. Club Programme:**

1. What are the goals of the teacher and the aims of the subject?

\_\_\_\_\_

2. Description of the material, a list of topics and sub-topics:

\_\_\_\_\_

3. What are the considerations that led the teacher in choosing the study topic?

i. On a goal level \_\_\_\_\_

ii. Explanation of content \_\_\_\_\_

iii. Expanding knowledge \_\_\_\_\_

iv. What teaching methods will be used \_\_\_\_\_

v. What the students' activities will be \_\_\_\_\_

4. What are the important focuses chosen for the topic?

\_\_\_\_\_

5. According to which principles is the study material organized? (areas of knowledge inter disciplinary): principle, concept, area of life, aspects, problems, skills.
- 
6. What are the principles for organizing the study material? (principles, concept, phenomenon, areas of life, aspects, problems).
- 
7. Is the study material presented in an organized manner? (from simple to complex, from material to abstract, from close to far).
- 
8. Is the study material organized in a modular or continual manner?
- 
9. Is the material structured from one activity to another or can it be used in a flexible manner?
- 
10. In addition to knowledge, understanding, application, and analysis, are additional thought processes presented?
- 
11. Is the educational material suited to the level of the students?
- 
12. Is the study material based on previous skills and knowledge?
- 
13. Is the study material suited to such a framework?
- 
14. Does the study material require parental or community cooperation (is this possible in reality)?
- 
15. Is there a connection made between the theoretical topic and its use in practical reality?
- 
16. What is the connection between the study material in school and the study material presented in the enrichment clubs?
-

17. Is there cooperation between your colleagues in the centre regarding the material that is taught?

---

18. What senses are the activities aimed at?

---

19. Is the emotional area considered (awareness, cooperation, and team work)?

---

20. Is creativity among the children encouraged in the study material?

---

### **B. Study materials**

1. Is there a book on the topic?

---

2. Is there a teachers' guide?

---

3. What does the student receive: text, work sheets, pictures, other?

---

4. Do the parents have the ability to pay for the study materials?

---

5. Does the study material require special conditions and equipment? Such as?

---

### **C. Teaching Methods**

1. Method of presenting the material – literary texts – informatory story, poem, article, news article, activating texts – experiments, observations, tasks, tours.

---

2. The didactic mechanism – questions, summaries, personal project, role-playing, raising topics for discussions, activities using pictures and events.

---

3. Is the activity accompanied by explanations, samples, titles, concepts, terms, principles?

---

4. How are the teaching methods expressed: investigation, discovery, experiment, lecture, individual work, small groups, and independent work.

---

**D. The place of the teacher**

1. Is there room for expression of values in the study material? What? Do they suit the teacher's outlooks?

---

2. At the end of the year of activity, does the teacher test if the goals and aims were attained?

---

3. Is their professional training sufficient for teaching this subject?

---

4. Is there a need to receive advanced training in order to teach the subject?

---

5. How is the study material coordinated with the gifted students?

---

6. Does presenting the topics in the class allow an opening for including students in planning coming lessons and activities?

---

**E. The place of the student**

1. What type of student does the study material cater for?

---



2. Does the student have tasks? Are they varied? Do they require explanations and intervention on the part of the teacher?

---

3. What is the place of students' questions?

Are they based on experience?

Are they based on curiosity?

Do they receive a direct answer or is this an opportunity for an additional activity?

Can the student draw any conclusions after receiving the answer or solving the problem?

---

4. Are the tendencies of the students considered?

---

## **F. Evaluation**

1. What is the benefit of the study material?

i. In the short term – feeling immediate achievement, understanding a phenomenon, competency in a basic skill.

ii. In the intermediate term – continuing to learn in the same area (progress), help in other areas.

iii. In the long term – providing tools for experiences in adult life.

---

2. Is feedback given by the student on the lesson?

By the teacher – regarding the students understanding, and activities

By the material – on his success in the experiment from the group of students

---

3. What topics are sources of enjoyment for the students?

---

4. In the lesson, is the student required to be: a passive receiver, involved in investigation, having intellectual needs, creative, curious?

---

5. What is the relationship of the student to the activity? At a high/low degree of difficulty.

---

6. Is there high competition/ambition in the group of students, and how does the teacher relate to the issue?

---

7. What is the atmosphere given off in the center regarding the programme of the club?

---

8. Is there feedback or opinions from an analysis by an outside body (parents, community, local authority)?

---

## Appendix 7

### Questionnaire for the student/participant

#### General Questions

1. Age \_\_\_\_\_
2. Are you a boy/girl \_\_\_\_\_
3. School Name \_\_\_\_\_
4. Grade \_\_\_\_\_
5. Club \_\_\_\_\_
6. In which town \_\_\_\_\_
7. Teacher's Name \_\_\_\_\_
8. Today's date \_\_\_\_\_

Below are a number of sentences. You must read every sentence and mark if in your opinion it is “**very correct**”; “**correct**”; “**a bit correct**”; or “**not correct**”

For each sentence, circle the appropriate answer in your opinion

	D	C	B	A
9. I was happy to be accepted on the programme	Very correct	correct	a bit correct	not correct
10. What we do here is very interesting	Very correct	correct	a bit correct	not correct
11. My parents were happy that I was accepted on the programme	Very correct	correct	a bit correct	not correct
12. Difficult and complicated things are taught and done here	Very correct	correct	a bit correct	not correct
13. We learn new things at every meeting.	Very correct	correct	a bit correct	not correct
14. I want to continue to participate in this group	Very correct	correct	a bit correct	not correct
15. The teacher/instructor is very good	Very correct	correct	a bit correct	not correct

16. The teacher/instructor makes an effort so that everyone understands	Very correct	correct	a bit correct	not correct
17. The students understand what is explained	Very correct	correct	a bit correct	not correct
18. What I learn here helps me in school	Very correct	correct	a bit correct	not correct
19. When we learn something here we understand it better	Very correct	correct	a bit correct	not correct
20. I learn many new things here	Very correct	correct	a bit correct	not correct
21. The teacher/instructor answers all of the students' questions	Very correct	correct	a bit correct	not correct
22. Here I receive self confidence for the coming school year	Very correct	correct	a bit correct	not correct
23. I met and made new friends here.	Very correct	correct	a bit correct	not correct
24. The teacher/ instructor is friendly with every child	Very correct	correct	a bit correct	not correct
25. I will recommend that my friend participates in this programme	Very correct	correct	a bit correct	not correct
26. My parents are very interested that I continue in the programme	Very correct	correct	a bit correct	not correct
27. It is the most fun here.	Very correct	correct	a bit correct	not correct

28. Is the programme as you wanted it to be? (Mark the appropriate answer).

- i. It was **better** than I expected.
- ii. It was **exactly** what I wanted.
- iii. It was **worse** than I expected.

29. What did you like?

---

---

---

30. What did you not like?

---

---

---

31. Give a grade to the programme between **1-10**.

What grade does it deserve? \_\_\_\_\_

Thank you.

## **Appendix 8**

### **Parental involvement in the CSK club system**

**Dear Parent,**

I am performing a study on the topic of educational curricula in Children Searching for Knowledge (CSK) clubs within the framework of my doctoral thesis.

I would appreciate if you would fill in this questionnaire and return it as soon as possible in the attached envelope.

The questionnaires are anonymous and will be used only for research and statistical analysis purposes.

Thank you for your cooperation

Brumer Lea  
Shazar 5 St., Ein Sarah  
Nahariya 22344

### **Parental questionnaire**

**I. Mark an X in the appropriate column according to your opinion.**

	Yes	Sometimes	No
1. In general I am satisfied with the CSK clubs my child/ren participate in.			
2. Does the CSK programme encourage Parental involvement?			
3. The CSK programme organizes enrichment activities.			
4. Are you familiar with the club programme?			
5. Does your child share his experiences from the club with you?			



6. Does your child express satisfaction with his studies in the club?			
7. Have you shown involvement in choosing the clubs for your children?			
8. Do you receive circulars describing and reporting on what occurs in CSK?			
9. Do you feel a change in your child academically/socially in light of his participating in the clubs?			
10. Have you taken personal initiative regarding the CSK framework?			
11. Have you participated in events within the project's framework?			
12. Have you been asked to pay additional money beyond registration fees for the club?			
13. Did you receive a feedback page at the end of the year of activities?			
14. Has there been any dialogue between you and the club's teachers?			
15. Have you been invited to visit the clubs your children participate in over the course of the year?			

16. Who have you turned to when there was a problem in the club framework:

the welfare manager, the project manager, the teacher of the club?

Was the problem solved to your satisfaction?

---

17. In your opinion, should parents be involved over the course of the year?

Cite which topics: \_\_\_\_\_

**B. The following are a number of questions relating to personal details**

a. Gender: M/F

b. Country of birth: \_\_\_\_\_

c. Year of Immigration: \_\_\_\_\_

d. Age:

1. Up to 30

2. 31-40

3. 41-50

4. 50+

e. Education: 1. Elementary 2. High School 3. University/College

f. Profession: \_\_\_\_\_

g. Number of children: \_\_\_\_\_

h. What grade is your child in: \_\_\_\_\_

i. The name of your child's school: \_\_\_\_\_

j. Placement of the child at home:

1. Oldest          2. Youngest          3. Middle

k. What clubs does your child participate in?

1) \_\_\_\_\_

2) \_\_\_\_\_

Thank you for your cooperation.

## **Appendix 9**

### **Observation**

Centre Name \_\_\_\_\_

Teacher Name: \_\_\_\_\_ Club: \_\_\_\_\_

Class: \_\_\_\_\_ No. of Students \_\_\_\_\_ Boys \_\_\_\_\_ Girls \_\_\_\_\_

### **Analysis of the teaching process**

#### **Teacher – students – mutual relations – conditions and environment**

##### **Teacher**

1. The teacher has control of the topic – concept and main ideas.	Level: high – medium – low
2. The teacher clarified the goals of the lesson	Level: high – medium – low
3. The teacher created activities and study materials according to the topic.	coordination: full, partial, none
4. The teacher structured the topics of the lesson according to the heterogeneity of the class.	coordination: full, partial, none
5. The teacher organized the lesson efficiently (introduction, focus, summary, division of time).	complete - partial - low
6. The teacher clearly phrased the questions instruction and data.	clear – partial – not clear
7. The teacher created interest and involvement (allows students to express themselves).	always, sometimes, not at all
8. The teacher encouraged cooperation, mutual help and communication.	always, sometimes, not at all
9. The teacher led to experiences while learning (excitement).	always, sometimes, not at all
10. The teacher speaks clearly and properly.	high verbal expression, intermediate, low.
11. The teacher reinforced criticized and guided.	always, sometimes, not at all
12. The teacher listens patiently to any idea that a student raises.	always, sometimes, not at all
13. The teacher takes attendance at the beginning of the lesson.	always, sometimes, not at all

### **Students**

1. The students participate in the class with educational intent.	complete – partial – little participation
2. The students participate in planning the course of the lesson.	complete – partial – little participation
3. The students participate in the discussion.	complete – partial – little participation
4. The students perform experiments according to instructions.	Properly – intermediate - not well.
5. The students record in notebooks, on worksheets, on the board or in a book.	properly – intermediate - not well.
6. The students help each other.	often- sometimes – little.
7. The students work independently or in small groups.	often – sometimes – little.

### **Mutual Relations**

1. Does the material interest the students?	much – somewhat – not at all
2. The teacher tested that the students understood the issue.	often, sometimes, little.
3. The teacher related to problems that the students raised and showed openness and flexibility running the lesson.	often, sometimes, little.
4. The teacher showed sensitivity towards the students' needs.	often, sometimes, little.
5. The atmosphere in the class and the relations between the teacher and student are not formal.	the entire lesson, part of the lesson
6. There was quiet or confusion in the class.	for a short time, for a long time.

### **Conditions and Surroundings**

1. Organization of the environment has a significant effect over the atmosphere of the lesson.	always, sometimes, not often.
2. A lack of place to store equipment.	problem, can be solved.
3. Is there help given for projects?	yes, partially, no.
4. Are there enough accessories and equipment?	yes, sometimes, no
5. Are there aids in the class (computers, slide viewer, television, video, maps)?	yes, sometimes, no
6. Is the laboratory equipped properly?	yes, sometimes, no
7. Is the class used clean and orderly?	clean, somewhat, dirty

## **Appendix 10**

The State of Israel  
Ministry of Education Culture and Sports  
Northern Region  
Gifted Students Department

August 21, 2000

**To**  
**The School Principal**

---

Dear Sir/Madam,

### **Choosing the Upper Percentile for the CSK Programme**

a. Location of students who will be recommended for CSK for the 2000/2001

school year will take place in grades 2 that will be in 3<sup>rd</sup> grade in the coming school year. We would like to emphasize the following instructions:

- 1) Ensuring the highest percentile of the entire grade and not the class. Deviation from this percentile as a result of pressure to include additional students harms the level and esteem of the project and also the excellent students.
- 2) Keeping with the schedule. The names of the students must be handed in by the end of the school year in order to prevent delays in beginning the project next year.
- 3) After all of the stages of location, hand the material in for the approval of the welfare manager and only then send it to the Region.
- 4) We ask you to be strict with location using only the attached location tool.

b. Stages of location

- 1) Every homeroom teacher will rate the students in the class from 1 to the end, with the most gifted child in her opinion being listed as number 1, and the rest in descending order.
- 2) For the students who are the top 20% additional relation will be given by the homeroom teacher with the aid of the counselor, via the attached tools.
- 3) After this, the principal will make a decision regarding the recommended upper percentile for participation in the project.

We must emphasize that the intent is the top percentile of the grade and not the class. The recommendations, with the attached tables, should be given to the educational welfare manager for approval. The project manager will send the approved recommendations to Puah Leibowitz, the supervisor of CSK of the Northern Region. It is very important for the recommendations to be handed in to the Ministry of Education no later than the end of the present school year.

### **Tools for locating gifted children for the CSK programme**

The following is an explanation and instructions for filling in the "Student Evaluation Form" in order to choose the students who will participate in the project for the 2001 school year.

### **Method of filling in the form**

1. The evaluations must be done only for the top 20% of the grade, according to the rating done by the homeroom teacher.
2. Every criterion of behaviour on the evaluation form appears on a separate sheet with the names of the students and therefore the evaluation must be filled in for each specific form of behaviour separately, no matter what the evaluation is regarding other forms of behavior.
3. Record a numerical evaluation on a scale of 1-5, for each criterion (1 is the lowest).

### **The following are the criteria for evaluation**

1. Scholastic ability - The student shows the ability to cope with the study material and with new material.
2. Independent thought - likes to look for different solutions and not necessarily those that are offered by the teacher.
3. Signs of curiosity - Shows curiosity regarding phenomena (asks why, and does not accept anything as automatically understood.
4. Differentiation between important and marginal - concentration only on elements relevant to the solution.
5. Motivation and perseverance - Perseveres in work and does not despair even when having difficulties.
6. How much do you recommend the participation of the student in the CSK enrichment programme (in words).

Attached are the pages for each criterion separately, and a page for the principal to fill in and send to the regional department.

Sincerely,

Puah Leibowitz  
CSK Supervisor of the Region

cc: Mr. Zvi Abrahami, Gifted Children Regional Supervisor  
Dr. Eliezer Meisels, Supervisor of Measurement  
Welfare Programme Managers  
CSK Managers

**To:**  
**Puah Leibowitz**  
**CSK Supervision of the Region**  
**Ministry of Education Culture and Sports**  
POB 530  
Upper Nazareth

School name: \_\_\_\_\_

City: \_\_\_\_\_

Dear Madam,

**Recommended Students for Participation in the CSK Programme 2001**

After all of the stages of location, according to the instructions and criteria, a decision has been made regarding the students who are the upper percentile of the grade (third grade). I recommend including the following students in the CSK framework. This list is in decreasing order (Number 1 - the most gifted)

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_
4. \_\_\_\_\_
5. \_\_\_\_\_

16. \_\_\_\_\_

Total students in 3<sup>rd</sup> grade: \_\_\_\_\_

Name and signature of the principal: \_\_\_\_\_

Name of the Manger of the Welfare Programme and signature \_\_\_\_\_



**Evaluation form for gifted students for inclusion in the CSK project**

**A. Scholastic Ability**

No.	Student	Class	Rating 1 (lowest) - 5 (highest)	Comments

**Evaluation form for gifted students for inclusion in the CSK project**

**B. Independent Thought**

No.	Student	Class	Rating 1 (lowest) - 5 (highest)	Comments

**Evaluation form for gifted students for inclusion in the CSK project**

**C. Show of Curiosity**

No.	Student	Class	Rating 1 (lowest) - 5 (highest)	Comments

**Evaluation form for gifted students for inclusion in the CSK project**

**D. Differentiation Between Important and Marginal**

No.	Student	Class	Rating 1 (lowest) - 5 (highest)	Comments

**Evaluation form for gifted students for inclusion in the CSK project**

**E. Motivation and Perseverance**

No.	Student	Class	Rating 1 (lowest) - 5 (highest)	Comments

**Evaluation form for gifted students for inclusion in the CSK project**

How much do you recommend participation of the student in the CSK enrichment programme (in words)

1. Student's Name: \_\_\_\_\_  
\_\_\_\_\_
2. Student's Name: \_\_\_\_\_  
\_\_\_\_\_
3. Student's Name: \_\_\_\_\_  
\_\_\_\_\_
4. Student's Name: \_\_\_\_\_  
\_\_\_\_\_
5. Student's Name: \_\_\_\_\_  
\_\_\_\_\_
6. Student's Name: \_\_\_\_\_  
\_\_\_\_\_

## **Appendix 11**

### **Memo**

**(Internal correspondence in government offices)**

To: Y. Levy - regional manager  
From: Abrahami Zvi

Date: 20/5/82  
File No.:

Re: Upper Stratum Project

I recommend a committee composed of:

1. A. Meulam
2. Zvi Katz
3. David Sherman
4. Zvi Abrahami

I recommend David Sherman as chairman

+4 principals: Tiberias  
Acco - Dani  
Afula  
Bet Shean

Sincerely,

Zvi

---

## **Appendix 12**

### **Memo**

**(Internal correspondence in government offices)**

To: Zvi Abrahami  
From: Y. Levy

Date: 26/5/82  
File No.:

Re:

I have agreed with D. Sherman regarding his role as Chairman of the Gifted Committee.

Please prepare for me an appointment letter with a job description that is applicable  
Please present me with a draft of the appointment letter.

Sincerely,  
Yosef

According to the recommendation Mr. Sherman  
Please recommend 4 principals (Elementary, Junior High and High School).



## **Appendix 13**

State of Israel

Ministry of Education and Culture  
Northern Region Office  
Tel: 065-729609  
Postal Code 17000

8 Tammuz 5742  
29 June 1982

To: Mr. David Sherman - Supervisor  
Mr. Abraham Mualem - Supervisor  
Mr. Zvi Abrahami - Region Supervisor  
  
Dr. Shmaryahu Biran - Manager of the Educational Center - Acco  
Mrs. Ruth Moss - Amal Comprehensive School Principal - Tiberias  
Mr. Shimon Azulai - Religious Comprehensive School Principal - Bet Shean  
Mr. Victor Peretz - Zeev (Geulim) school Principal - Afula

Dear Sir/Madam,

Re: Regional Committee for cultivating the Upper Stratum

You are hereby invited to be members of the regional committee for promotion of the upper stratum of special care students.

a. Objectives and Purposes of the Committee

1. Initiation of programmes for promotion of the upper stratum of special care students in the fields of science, art and Judaic Studies.
2. Developing operative models for operating these programmes, while creating contact with institutes of higher education, scientist who are willing to apply themselves to the task, the unit for the gifted in the Head Office, etc.
3. Pedagogical tracking of operation of the programme, learning lessons and coordinating the programmes accordingly.
4. Examining the programmes operating in this field in the region (Bet Shean, Acco, Afula, Tiberias) and guiding them according to principles determined by the committee.
5. Determining principles for locating the target population from among students tested for participation in the project.
6. Determining principles for choosing teachers and students (PERACH) who will work in the project.
7. All projects for the upper stratum in the towns are subordinate to the certification of the committee.

- b. The committee will include a teacher in the role of consulting that works half time. The above mentioned will be chosen by the members of the committee and will be subordinate to the committee during the course of his work.
- c. Mr. David Sherman will be the chairperson of the committee.
- d. Time Schedule
  - 1. By the end of August, the committee will consolidate its main recommendations (sections A 1,2,3,4,5,6).
  - 2. During the course of September-October, practical preparations for application of the programmes to be operated will be made. The programme will begin 1.11.82.
  - 3. Over the course of the school year the committee will meet to apply section A3.

I wish you success in your work.

Sincerely,

Yosef Levy  
Regional Manager



## **Appendix 14**

**State of Israel  
Ministry of Education and Culture  
Northern Office  
POB 530 Tel: 72960**

**Tishri 24 5746  
October 9, 1985**

To:  
The Principal  
Dear Sir/Madam,

### **A. "Children Searching for Knowledge" Project**

At the end of two years of existence of the CSK project, I would like to present you with a general survey of its activities, goals and achievements up until this year.

It should be emphasized that this project does not reject or take the place of the existing school, but exists alongside it. The existing structure of the school does not allow treating students in an individual manner according to their personal needs, and therefore there was a need to treat students with above average talents within this special framework that will satisfy their personal needs and skills.

The Northern region of the Ministry of Education has opened two frameworks to treat the skilled child:

The first - is the project for gifted children, and the second - the "Children Searching for Knowledge" project which we will expand upon in this circular. These two frameworks exist, as mentioned, alongside the existing school, they complement it and their success depends greatly on the connection and cooperation between the school and the programmes.

The gifted children project treats a total of 1-1.5% of the level of students, and the students are chosen according to an extraneous test given by the unit for gifted children of the Szold Institute. It operates according to the individual student, once weekly, at the expense of one school day.

The scope and structure of the CSK programme is different as detailed below:

Acre, Kiryat Shemona, Ma'alot, Shlomi, Ma'aleh Yosef, Tiberias, Bet She'an, Safed, Merom Hagalil, Afula, Migdal Ha'emek, Yokneam, Nazareth Illit, Hatzor, participate, including 1300 students from the Northern region.

The resources of the project are budgeted by the steering committee of the Welfare programme of the town. The activity of the institute lasts for 30 weeks, from 20.10 to 20.5, of every year.

### **B. Goals of the Project**

1. Providing opportunities for the skilled student to enjoy an educational programme which is suited to the needs, skills, and goals of the student and his community.
2. Providing proper satisfaction for his intellectual desires and providing him with

the opportunity to develop his/her skills and a rate that suits him.

3. Encouraging the skilled student to raise his level of expectations regarding him and to increase his willingness to invest efforts in fulfilling his/her hidden potential.
4. Developing scientific curiosity among skilled students, developing their logical thought, guiding them in the relationship between cause and effect, increasing their understanding and use of legal concepts.

#### Target Population

1. Students who search for knowledge are students who have attained high scholastic achievements in the basic subjects or who show a creative talent in any field of the theoretical or artistic subjects. The clubs that took place at the beginning of 1984 included students chosen from grades 5 and 6, and this year, 1986, the clubs will be expanded and include grade 7 also. For budgetary reasons, it is not possible to open the clubs for 8<sup>th</sup> grade students also.
2. Choosing the students in each town is done using standard tests in reading comprehension, mathematical knowledge, and based on the opinion of the homeroom teacher and the principal of the school regarding the candidate student's level of willpower and perseverance.
3. Representation of the students of each school will be 10% of the grade. Addition of a student will be done to replace another student.
4. Continued study in the project will be decided by the opinion of the teachers involved in the project and depending on the student's participation and presence in 80% of the sessions.

#### C. Organization and Administration

1. In every town there will be a central institution in which all of the students who are accepted will learn.
2. The studies take place in the afternoon hours.
3. Every student will commit to two clubs.
4. Every town will have a local committee made up of:
  - The principal of the institution.
  - A representative of the steering committee
  - A supervisory representative
  - A representative of the school administration
  - The manager of the Welfare project.
  - A representative of the Parents' Association.
5. The principal of the institution which is chosen as the centre and the local committee will present the local committee with a comprehensive yearly programme for the clubs that will be implemented in the institute.

#### D. Curriculum

The curriculum of the clubs is based on existing enrichment programmes in different institutes such as the Technion and Weitzman Institute.

In addition, it will include the curricula of the specific teacher who have been teaching each grade level for at least two years.

### Teaching Staff

The teachers who teach in the clubs have been carefully chosen by the principal of the institution in coordination with the supervisor of the school. Teaching within the project differs from regular teaching because it requires searching for ways to stimulate the curiosity of the students in different areas that are not studied within the framework of formal education.

The teachers must participate in advanced training over the course of the year and during vacation, on the topics of mathematical thought, computer, art and nature.

### Various Activities

Over the course of the year, additional activities take place outside of the yearly curriculum.

1. Educational field trips - The students visit museums etc. to expand upon activities in certain clubs.
2. Personal project - Every student who is interested in expanding his personal knowledge and satisfying his curiosity in a certain field, works on a personal project according to the topic of his choice, and receives guidance and complete support by the teachers.
3. Regional newsletter - Twice yearly, a newsletter is published regarding the CSK project. The newsletter is the creation of the students in the project.
4. Competitions for prizes - Over the course of the year, there are quizzes for prizes between all of the CSK institutes on the topics of math, computers and creative writing. The competitions take place via written quizzes, and the student can involve his parents and friends in finding the solutions.
5. The excellent students can participate in summer camps organized by the region during the summer vacation. The main activity in such camps is social.

In summary, we should note that with the start of the third year of activity in the project, positive feedback has been received from external bodies, parents, school principals, etc., reactions that testify that the project fulfills the goals that it has set and has planted its roots in every town.

You are requested to pass this circular to the homeroom teachers of students who participate in the clubs.

Sincerely,

Shalom Ozan  
Project Supervisor  
CSK and Gifted Children

cc: Dr. Yosef Levy - Regional Manager; Mr. Zvi Avrahami - Manager of the Department for Cultivation, Welfare and Rehabilitation; Regional Committee; Welfare Project Managers; Supervisors, CSK institute principals.

## **Appendix 15**

State of Israel  
Ministry of Education and Culture  
Northern Office  
POB 530 Tel: 72960

24 Adar I, 5746  
5 March 1986

To you, the CSK Teacher

Dear Sir/Madam,

In the ongoing communication that exists between the various factors involved in the CSK project, there has been a lack of communication with one of the central factors to the success of the project, the teaching force.

This letter first of all aims to express thanks and esteem for your dedicated work within the framework of the project.

Teaching gifted children is no doubt work that involves a challenge and uniqueness that do not exist within the framework of the regular school. It is unnecessary to note and detail the importance of the project including students who have the potential to be the intellectual elite of the future State.

No doubt, this work also involves much satisfaction for the teacher. The greater the challenge, the greater the satisfaction.

Within your work in the project, you have certainly already seen its special and unique character. Because of the uniqueness and difference of this work from that of regular teachers, we would like to discuss a number of important principles that should be applied in the teaching framework.

One. The study topics: study topics and issues should be chosen that are not connected to/overlapping the material learned in school. However, flexibility should be shown in suiting the material to the tendencies of the class. It is best if the material studied is not forced but that the students find interest in it and are curious about it.

Two. Encouraging excellent students to work independently on the topic that they choose:

Independent work is one of the best tools for realizing the objectives that the project has set for itself: developing thought, stimulating and developing curiosity, coping with thought, expanding horizons, etc.

Work should be done with the continual guidance of the teacher.

Three. Referral to sources of study in the library: Refer the students for independent work, as much as possible, to the reference material in the library. Thinking is necessary both for independent study and for familiarity of the student with the library...

Four. Do not hesitate to give challenging tasks and assignments to the students. End lessons with riddles and questions that stimulate thought, towards the next lesson.

Five. For illustration, an educational experience should include educational tours to sites and places related to the study topic.

These recommendations/ideas are certainly applied by many of you, but we still wanted to list them in this letter.

In addition we would like to hear from you, your **impressions** and opinions on:

1. If any teacher has any idea for feeding and mutual productivity for all teachers who work in the project, we would like to hear and to publish it. These are recommendations or ideas for a study topic, activity or method of operation that was tried or that seems appropriate for the students of the project.
2. Interesting study material: If any teacher has a study unit on any topic, that is put together and constructed in accordance with the level of the students learning in the project, and satisfies the criteria and objectives that the project has set for it, we would be willing to publish it.

If a study unit is unique regarding its content and arrangement, and is not like any of the other existing programme, we will examine the option for publishing it outside the CSK programme, also for other existing frameworks in the Ministry of Education.

Anyone interested in additional details, please contact me directly.

We hope that, no less than the student, your work in the CSK framework provides you with satisfaction and interest. Good job done in your work.

Sincerely,

Shalom Ozen  
Organizer of the Gifted Children Programme  
and CSK Project

cc:

Dr. Yosef Levy - Regional Manager  
Mr. Zvi Abrahams - Regional Manager of the Department for Cultivation, Welfare and Rehabilitation  
Mr. Zvi Katz - Deputy Regional Manager  
Members of the Regional Committee  
CSK Centre Managers

## **Appendix 16**

### **Factor Analysis - Students**

#### **Descriptive Statistics**

	Mean	Std. Deviation	Analysis N
Q9	3.73	.607	435
Q10	3.63	.636	435
Q11	3.76	.549	435
Q12	2.10	1.000	435
Q13	3.32	.859	435
Q14	3.60	.780	435
Q15	3.71	.607	435
Q16	3.73	.580	435
Q17	2.97	.885	435
Q18	2.89	1.110	435
Q19	3.39	.768	435
Q20	3.60	.703	435
Q21	3.57	.697	435
Q22	2.91	1.092	435
Q23	3.10	1.108	435
Q24	3.56	.739	435
Q25	3.43	.891	435
Q26	3.66	.682	435
Q27	3.18	.962	435

#### **Communalities**

	Initial	Extraction		Initial	Extraction
Q9	1.000	.559	Q19	1.000	.530
Q10	1.000	.649	Q20	1.000	.599
Q11	1.000	.732	Q21	1.000	.615
Q12	1.000	.798	Q22	1.000	.668
Q13	1.000	.421	Q23	1.000	.296
Q14	1.000	.742	Q24	1.000	.623
Q15	1.000	.637	Q25	1.000	.618
Q16	1.000	.636	Q26	1.000	.571
Q17	1.000	.499	Q27	1.000	.650
Q18	1.000	.657			
Q19	1.000	.530			

Extraction Method: Principal Component Analysis.

### Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	6.949	36.574	36.574	6.949	36.574	36.574	3.402	17.904	17.904
2	1.350	7.106	43.680	1.350	7.106	43.680	2.955	15.552	33.456
3	1.177	6.197	49.877	1.177	6.197	49.877	2.267	11.930	45.386
4	1.018	5.360	55.236	1.018	5.360	55.236	1.767	9.301	54.687
5	1.006	5.294	60.530	1.006	5.294	60.530	1.110	5.843	60.530
6	.937	4.933	65.463						
7	.788	4.149	69.612						
8	.736	3.872	73.484						
9	.646	3.402	76.886						
10	.594	3.126	80.012						
11	.543	2.858	82.869						
12	.532	2.802	85.672						
13	.494	2.600	88.272						
14	.459	2.416	90.688						
15	.411	2.162	92.850						
16	.381	2.007	94.858						
17	.362	1.908	96.765						
18	.319	1.678	98.443						
19	.296	1.557	100.000						

Extraction Method: Principal Component Analysis.

### Component Matrix(a)

	Component				
	1	2	3	4	5
Q27	.727	.146	-.149	-.274	.048
Q25	.715	.066	-.245	-.208	.004
Q10	.709	.049	-.156	-.166	.303
Q14	.697	.067	-.419	-.222	.162
Q24	.681	-.354	.161	.090	.027
Q20	.674	.089	.146	-.218	.262
Q15	.671	-.377	.130	.009	.166



Q19	.657	.126	.219	-.114	-.148
Q9	.649	-.046	-.317	.181	-.061
Q26	.648	.106	-.310	.203	-.049
Q16	.638	-.352	.214	.137	.200
Q22	.580	.402	.199	-.068	-.355
Q13	.578	.107	.261	-.076	-.044
Q21	.564	-.403	.314	.137	-.128
Q17	.499	-.212	.169	-.176	-.382
Q23	.394	.089	.058	.359	-.029
Q18	.498	.519	.176	.144	-.297
Q11	.479	.038	-.307	.637	-.031
Q12	.061	.479	.422	.215	.584

Extraction Method: Principal Component Analysis.  
a. 5 components extracted.

#### Rotated Component Matrix(a)

	Component				
	1	2	3	4	5
Q14	.814	.123	.098	.221	-.080
Q10	.713	.289	.117	.150	.144
Q27	.697	.203	.336	.095	-.023
Q25	.677	.206	.264	.181	-.119
Q20	.561	.381	.278	-.022	.250
Q21	.037	.731	.206	.157	-.107
Q16	.253	.718	.043	.201	.117
Q15	.360	.697	.039	.140	.014
Q24	.268	.696	.139	.212	-.046
Q17	.153	.444	.398	-.028	-.345
Q22	.231	.104	.766	.131	-.006
Q18	.125	-.005	.734	.294	.130
Q19	.327	.355	.541	.068	.019
Q13	.272	.358	.451	.045	.114
Q11	.139	.142	.058	.830	.016
Q26	.458	.144	.221	.535	-.070
Q9	.447	.240	.141	.507	-.156
Q23	.050	.214	.227	.423	.132
Q12	-.001	-.008	.123	.021	.884

Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization.  
a. Rotation converged in 7 iterations.

**Component Transformation Matrix**

Component	1	2	3	4	5
1	.628	.543	.435	.348	.006
2	.136	-.670	.563	.090	.455
3	-.485	.488	.414	-.409	.433
4	-.479	.095	-.097	.834	.238
5	.349	.092	-.560	-.086	.741

Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization.

**Component Score Coefficient Matrix**

	Component				
	1	2	3	4	5
Q9	.079	-.047	-.073	.293	-.134
Q10	.316	-.021	-.143	-.069	.144
Q11	-.137	-.052	-.106	.658	.027
Q12	-.019	.015	.006	.015	.797
Q13	-.024	.089	.204	-.113	.082
Q14	.403	-.158	-.145	-.011	-.063
Q15	.022	.310	-.163	-.043	.046
Q16	-.061	.344	-.156	.030	.140
Q17	-.096	.163	.231	-.159	-.331
Q18	-.146	-.159	.461	.142	.055
Q19	-.016	.056	.264	-.116	-.012
Q20	.203	.072	.005	-.212	.227
Q21	-.228	.376	.035	.016	-.082
Q22	-.081	-.110	.478	-.038	-.068
Q23	-.158	.041	.064	.302	.114
Q24	-.073	.306	-.072	.026	-.018
Q25	.271	-.097	.004	-.045	-.113
Q26	.085	-.116	-.016	.318	-.066
Q27	.287	-.098	.053	-.130	-.033

Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization. Component Scores.

## Descriptives

### Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
BART factor score 1 for analysis 1	435	-4.04314	1.82947	.0000000	1.00000000
BART factor score 2 for analysis 1	435	-4.90439	2.64099	.0000000	1.00000000
BART factor score 3 for analysis 1	435	-3.05244	2.83713	.0000000	1.00000000
BART factor score 4 for analysis 1	435	-4.43891	2.69697	.0000000	1.00000000
BART factor score 5 for analysis 1	435	-2.52895	3.04436	.0000000	1.00000000
Valid N (listwise)	435				

## Reliability

\*\*\*\*\* Method 2 (covariance matrix) will be used for this analysis \*\*\*\*\*

### RELIABILITY ANALYSIS - SCALE (ALPHA)

#### Correlation Matrix

	Q14	Q10	Q27	Q25	Q20
Q14	1.0000				
Q10	.5948	1.0000			
Q27	.5996	.5342	1.0000		
Q25	.5827	.5015	.5569	1.0000	
Q20	.4601	.5222	.4306	.4789	1.0000

N of Cases = 460.0

#### Item-total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Alpha if Item Deleted
Q14	13.8000	6.5569	.7078	.5144	.7925
Q10	13.7696	7.2714	.6693	.4644	.8092
Q27	14.2283	5.9630	.6641	.4552	.8083
Q25	13.9804	6.2284	.6647	.4465	.8048
Q20	13.8217	7.2536	.5708	.3479	.8283

Reliability Coefficients 5 items

Alpha = .8412

Standardized item alpha = .8474

## Reliability

\*\*\*\*\* Method 2 (covariance matrix) will be used for this analysis \*\*\*\*\*

### RELIABILITY ANALYSIS - SCALE (ALPHA)

#### Correlation Matrix

	Q21	Q16	Q15	Q24	Q17
Q21	1.0000				
Q16	.4498	1.0000			
Q15	.4350	.5639	1.0000		
Q24	.4945	.5308	.6140	1.0000	
Q17	.3535	.3014	.3251	.3374	1.0000

N of Cases = 457.0

#### Item-total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item- Total Correlation	Squared Multiple Correlation	Alpha if Item Deleted
Q21	13.9540	4.6053	.5653	.3268	.7374
Q16	13.8074	4.8576	.5983	.4011	.7324
Q15	13.8249	4.7149	.6364	.4673	.7200
Q24	13.9781	4.2232	.6470	.4716	.7079
Q17	14.5449	4.4547	.4144	.1758	.8052

Reliability Coefficients 5 items

Alpha = .7810 Standardized item alpha = .7975

## Reliability

\*\*\*\*\* Method 2 (covariance matrix) will be used for this analysis \*\*\*\*\*

—

### R E L I A B I L I T Y   A N A L Y S I S   -   S C A L E   ( A L P H A )

#### Correlation Matrix

	Q22	Q18	Q19	Q13
Q22	1.0000			
Q18	.5237	1.0000		
Q19	.4278	.3388	1.0000	
Q13	.3060	.2943	.4149	1.0000

N of Cases = 461.0

#### Item-total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item- Total Correlation	Squared Multiple Correlation	Alpha if Item Deleted
Q22	9.5510	4.2653	.5687	.3500	.5951
Q18	9.5922	4.3638	.5194	.3014	.6323
Q19	9.0499	5.6040	.5086	.2794	.6480
Q13	9.1605	5.5655	.4143	.2048	.6891

Reliability Coefficients 4 items

Alpha = .7075      Standardized item alpha = .7140

## Reliability

\*\*\*\*\* Method 2 (covariance matrix) will be used for this analysis \*\*\*\*\*

—

### R E L I A B I L I T Y   A N A L Y S I S   -   S C A L E   ( A L P H A )

#### Correlation Matrix

	Q11	Q26	Q9	Q23
Q11	1.0000			
Q26	.4305	1.0000		
Q9	.4310	.3879	1.0000	
Q23	.1994	.1800	.2275	1.0000

N of Cases = 456.0

#### Item-total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item- Total Correlation	Squared Multiple Correlation	Alpha if Item Deleted
Q11	10.4759	2.9796	.4502	.2730	.4533
Q26	10.5899	2.7172	.4037	.2393	.4540
Q9	10.5044	2.8571	.4468	.2507	.4414
Q23	11.1601	2.0468	.2573	.0689	.6745

Reliability Coefficients 4 items

Alpha = .5645      Standardized item alpha = .6418

# General Linear Model

## Between-Subjects Factors

		Value Label	N
Gender	1	Male	198
	2	Female	230

## Descriptive Statistics

		Gender		
		Male	Female	Total
BART factor score 1 for analysis 1	Mean	-.25	..21	-.01
	SD	1.18	.76	1.01
	N			428
BART factor score 2 for analysis 1	Mean	-.05	..05	.00
	SD	1.07	.95	1.00
	N			428
BART factor score 3 for analysis 1	Mean	.00	-.02	-.01
	SD	1.02	.98	1.00
	N			428
BART factor score 4 for analysis 1	Mean	-.23	..19	-.01
	SD	1.15	.82	1.01
	N			428

## Multivariate Tests(b)

Effect		Value	F	Hypothesis df	Error df	Sig.
Intercept	Pillai's Trace	.001	..124(a)	4.000	423.000	.974
	Wilks' Lambda	.999	..124(a)	4.000	423.000	.974
	Hotelling's Trace	.001	..124(a)	4.000	423.000	.974
	Roy's Largest Root	.001	..124(a)	4.000	423.000	.974
GENDER	Pillai's Trace	.097	11.341(a)	4.000	423.000	.000
	Wilks' Lambda	.903	11.341(a)	4.000	423.000	.000
	Hotelling's Trace	.107	11.341(a)	4.000	423.000	.000
	Roy's Largest Root	.107	11.341(a)	4.000	423.000	.000

a Exact statistic

b Design: Intercept+GENDER



# Tests of Between-Subjects Effects

Source	Dependent Variable	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	BART factor score 1 for analysis 1	22.201(a)	1	22.201	23.116	..000
	BART factor score 2 for analysis 1	..992(b)	1	..992	.984	..322
	BART factor score 3 for analysis 1	..068(c)	1	..068	.068	..795
	BART factor score 4 for analysis 1	18.570(d)	1	18.570	19.143	..000
Intercept	BART factor score 1 for analysis 1	..225	1	..225	.234	..629
	BART factor score 2 for analysis 1	..001	1	..001	.001	..974
	BART factor score 3 for analysis 1	..051	1	..051	.051	..821
	BART factor score 4 for analysis 1	..184	1	..184	.189	..664
GENDER	BART factor score 1 for analysis 1	22.201	1	22.201	23.116	..000
	BART factor score 2 for analysis 1	..992	1	..992	.984	..322
	BART factor score 3 for analysis 1	..068	1	..068	.068	..795
	BART factor score 4 for analysis 1	18.570	1	18.570	19.143	..000
Error	BART factor score 1 for analysis 1	409.138	426	..960		
	BART factor score 2 for analysis 1	429.546	426	1.008		
	BART factor score 3 for analysis 1	424.899	426	..997		
	BART factor score 4 for analysis 1	413.247	426	..970		
Total	BART factor score 1 for analysis 1	431.354	428			
	BART factor score 2 for analysis 1	430.540	428			
	BART factor score 3 for analysis 1	425.027	428			
	BART factor score 4 for analysis 1	431.828	428			
Corrected Total	BART factor score 1 for analysis 1	431.339	427			

BART factor score 2 for analysis 1	430.538	427
BART factor score 3 for analysis 1	424.967	427
BART factor score 4 for analysis 1	431.817	427

a R Squared = .051 (Adjusted R Squared = .049)  
b R Squared = .002 (Adjusted R Squared = .000)  
c R Squared = .000 (Adjusted R Squared = -.002)  
d R Squared = .043 (Adjusted R Squared = .041)

## General Linear Model

### Between-Subjects Factors

	Value Label	N
CLASS1 .00	3rd grade	40
1.00	4th grade	212
2.00	5th grade	115
3.00	6th grade	66

### Descriptive Statistics

		CLASS1				
		3rd grade	4th grade	5th grade	6th grade	Total
BART factor score 1 for analysis 1	M	.08	.02	-.07	.01	.00
	SD	.75	1.00	1.04	1.09	1.00
	N	40	212	115	66	433
BART factor score 2 for analysis 1	M	-.17	.09	-.12	.01	.00
	SD	.75	.91	1.10	1.20	1.00
	N	40	212	115	66	433
BART factor score 3 for analysis 1	M	.65	.03	.07	-.60	.00
	SD	.66	1.02	.92	.95	1.00
	N	40	212	115	66	433
BART factor score 4 for analysis 1	M	.14	.01	.03	-.20	.00
	SD	.77	.99	1.05	1.06	1.00
	N	40	212	115	66	433

## Descriptive Statistics

			CLASS1				
			3rd grade	4th grade	5th grade	6th grade	Total
BART score analysis 1	factor 1	M	..08	.02	-.07	.01	.00
		SD	.75	1.00	1.04	1.09	1.00
		N					433
BART score analysis 1	factor 2	M	-.17	.09	-.12	.01	.00
		SD	.75	..91	1.10	1.20	1.00
		N					433
BART score analysis 1	factor 3	M	..65	.03	..07	-.60	.00
		SD	.66	1.02	.92	..95	1.00
		N					433
BART score analysis 1	factor 4	M	..14	.01	..03	-.20	.00
		SD	.77	..99	1.05	1.06	1.00
		N					433

## Multivariate Tests(c)

Effect		Value	F	Hypothesis df	Error df	Sig.
Intercept	Pillai's Trace	.002	..264(a)	4.000	426.000	.901
	Wilks' Lambda	.998	..264(a)	4.000	426.000	.901
	Hotelling's Trace	.002	..264(a)	4.000	426.000	.901
	Roy's Largest Root	.002	..264(a)	4.000	426.000	.901
CLASS1	Pillai's Trace	.117	4.349	12.000	1284.000	.000
	Wilks' Lambda	.884	4.481	12.000	1127.382	.000
	Hotelling's Trace	.130	4.594	12.000	1274.000	.000
	Roy's Largest Root	.118	12.675(b)	4.000	428.000	.000

a Exact statistic

b The statistic is an upper bound on F that yields a lower bound on the significance level.

c Design: Intercept+CLASS1

# Tests of Between-Subjects Effects

Source	Dependent Variable	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	BART factor score 1 for analysis 1	..968(a)	3	..323	.320	..811
	BART factor score 2 for analysis 1	4.559(b)	3	1.520	1.520	..209
	BART factor score 3 for analysis 1	41.559(c)	3	13.853	15.156	..000
	BART factor score 4 for analysis 1	3.720(d)	3	1.240	1.237	..296
Intercept	BART factor score 1 for analysis 1	..024	1	..024	.024	..877
	BART factor score 2 for analysis 1	..640	1	..640	.640	..424
	BART factor score 3 for analysis 1	..352	1	..352	.385	..535
	BART factor score 4 for analysis 1	..002	1	..002	.002	..967
CLASS1	BART factor score 1 for analysis 1	..968	3	..323	.320	..811
	BART factor score 2 for analysis 1	4.559	3	1.520	1.520	..209
	BART factor score 3 for analysis 1	41.559	3	13.853	15.156	..000
	BART factor score 4 for analysis 1	3.720	3	1.240	1.237	..296
Error	BART factor score 1 for analysis 1	432.769	429	1.009		
	BART factor score 2 for analysis 1	428.873	429	1.000		
	BART factor score 3 for analysis 1	392.114	429	..914		
	BART factor score 4 for analysis 1	430.035	429	1.002		
Total	BART factor score 1 for analysis 1	433.737	433			
	BART factor score 2 for analysis 1	433.432	433			
	BART factor score 3 for analysis 1	433.675	433			
	BART factor score 4 for analysis 1	433.757	433			
Corrected Total	BART factor score 1 for analysis 1	433.737	432			

BART factor score 2 for analysis 1	433.432	432
BART factor score 3 for analysis 1	433.673	432
BART factor score 4 for analysis 1	433.756	432

a R Squared = .002 (Adjusted R Squared = -.005)  
b R Squared = .011 (Adjusted R Squared = .004)  
c R Squared = .096 (Adjusted R Squared = .090)  
d R Squared = .009 (Adjusted R Squared = .002)

## Post Hoc Tests

### Multiple Comparisons

Dependent Variable: BART factor score 3 for analysis 1  
Scheffe

(I) Class	(J) Class	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
1	1					
	2	-.0428531	..11072212	.985	-.3536076	.2679015
	3	.6291494(*)	..13475964	.000	..2509307	1.0073680
	4	-.6232525(*)	..16480853	.003	-1.0858068	-.1606981
2	1	.0428531	..11072212	.985	-.2679015	.3536076
	2					
	3	.6720024(*)	..14763718	.000	..2576414	1.0863634
	4	-.5803994(*)	..17549481	.013	-1.0729461	-.0878527
3	1	-.6291494(*)	..13475964	.000	-1.0073680	-.2509307
	2	-.6720024(*)	..14763718	.000	-1.0863634	-.2576414
	3					
	4	-1.2524018(*)	..19157036	.000	-1.7900664	-.7147372
4	1	.6232525(*)	..16480853	.003	..1606981	1.0858068
	2	.5803994(*)	..17549481	.013	..0878527	1.0729461
	3	1.2524018(*)	..19157036	.000	..7147372	1.7900664
	4					

\* The mean difference is significant at the .05 level.

## Homogeneous Subsets

BART factor score 3 for analysis 1

Scheffe

Class	N	Subset for alpha = .05		
		1	2	3
3	66	-.60		
1	212		.03	
2	115		.07	
4	40			.65
Sig.		1.00	.99	1.00

Means for groups in homogeneous subsets are displayed.

a Uses Harmonic Mean Sample Size = 74.677.

b The group sizes are unequal. The harmonic mean of the group sizes is used. Type I error levels are not guaranteed.

## General Linear Model

Between-Subjects Factors

	Value Label	N
Center	1	46
	2	46
	3	26
	4	71
	5	32
	6	26
	7	36
	8	30
	9	24
	10	44
	11	54

### Descriptive Statistics

[illegible]



## Multivariate Tests(c)

Effect		Value	F	Hypothesis df	Error df	Sig.
Intercept	Pillai's Trace	.005	..564(a)	4.000	421.000	.689
	Wilks' Lambda	.995	..564(a)	4.000	421.000	.689
	Hotelling's Trace	.005	..564(a)	4.000	421.000	.689
	Roy's Largest Root	.005	..564(a)	4.000	421.000	.689
CENTRE	Pillai's Trace	.334	3.864	40.000	1696.000	.000
	Wilks' Lambda	.702	3.905	40.000	1598.238	.000
	Hotelling's Trace	.375	3.931	40.000	1678.000	.000
	Roy's Largest Root	.170	7.199(b)	10.000	424.000	.000

a Exact statistic

b The statistic is an upper bound on F that yields a lower bound on the significance level.

c Design: Intercept+CENTER

## Tests of Between-Subjects Effects

Source	Dependent Variable	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	BART factor score 1 for analysis 1	27.970(a)	10	2.797	2.921	..001
	BART factor score 2 for analysis 1	60.873(b)	10	6.087	6.917	..000
	BART factor score 3 for analysis 1	30.397(c)	10	3.040	3.193	..001
	BART factor score 4 for analysis 1	25.738(d)	10	2.574	2.673	..004
Intercept	BART factor score 1 for analysis 1	..027	1	..027	.028	..867
	BART factor score 2 for analysis 1	..244	1	..244	.277	..599
	BART factor score 3 for analysis 1	..248	1	..248	.260	..610
	BART factor score 4 for analysis 1	1.585	1	1.585	1.646	..200
CENTER	BART factor score 1 for analysis 1	27.970	10	2.797	2.921	..001
	BART factor score 2 for analysis 1	60.873	10	6.087	6.917	..000
	BART factor score 3 for analysis 1	30.397	10	3.040	3.193	..001

Error	BART factor score 4 for analysis 1	25.738	10	2.574	2.673	..004
	BART factor score 1 for analysis 1	406.030	424	..958		
	BART factor score 2 for analysis 1	373.127	424	..880		
	BART factor score 3 for analysis 1	403.603	424	..952		
	BART factor score 4 for analysis 1	408.262	424	..963		
Total	BART factor score 1 for analysis 1	434.000	435			
	BART factor score 2 for analysis 1	434.000	435			
	BART factor score 3 for analysis 1	434.000	435			
	BART factor score 4 for analysis 1	434.000	435			
Corrected Total	BART factor score 1 for analysis 1	434.000	434			
	BART factor score 2 for analysis 1	434.000	434			
	BART factor score 3 for analysis 1	434.000	434			
	BART factor score 4 for analysis 1	434.000	434			

a R Squared = .064 (Adjusted R Squared = .042)  
b R Squared = .140 (Adjusted R Squared = .120)  
c R Squared = .070 (Adjusted R Squared = .048)  
d R Squared = .059 (Adjusted R Squared = .037)

## Post Hoc Tests

### Centre

#### Multiple Comparisons

Scheffe

Dependent Variable	(I) Centre	(J) Centre	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
BART factor score 1 for analysis 1	1	1					
		2	-.2118503	..20404793	1.000	-1.0902155	.6665150
		3	-.1143481	..24010255	1.000	-1.1479177	.9192214
		4	-.4917077	..18521704	.720	-1.2890116	.3055962
		5	-.4427914	..22526281	.952	-1.4124803	.5268976
		6	-.8007226	..24010255	.351	-1.8342922	.2328470

2	7	-.7572492	..21775737	.283	-1.6946295	.1801311
	8	-.7477180	..22964837	.392	-1.7362855	.2408494
	9	-.3510832	..24641128	.996	-1.4118100	.7096435
	10	-.7267546	..20635363	.263	-1.6150451	.1615360
	11	-.5068009	..19634521	.756	-1.3520083	.3384064
	1	..2118503	..20404793	1.000	-.6665150	1.0902155
	2					
	3	..0975021	..24010255	1.000	-.9360674	1.1310717
	4	-.2798575	..18521704	.994	-1.0771614	.5174464
	5	-.2309411	..22526281	1.000	-1.2006301	.7387478
	6	-.5888723	..24010255	.813	-1.6224419	.4446972
3	7	-.5453989	..21775737	.791	-1.4827792	.3919813
	8	-.5358678	..22964837	.858	-1.5244352	.4526997
	9	-.1392330	..24641128	1.000	-1.1999598	.9214938
	10	-.5149043	..20635363	.795	-1.4031949	.3733863
	11	-.2949507	..19634521	.994	-1.1401580	.5502567
	1	..1143481	..24010255	1.000	-.9192214	1.1479177
	2	-.0975021	..24010255	1.000	-1.1310717	.9360674
	3					
	4	-.3773596	..22431903	.985	-1.3429859	.5882667
	5	-.3284433	..25837378	.998	-1.4406650	.7837785
	6	-.6863745	..27140912	.780	-1.8547094	.4819605
4	7	-.6429011	..25185700	.769	-1.7270700	.4412679
	8	-.6333699	..26220612	.828	-1.7620887	.4953489
	9	-.2367351	..27700577	1.000	-1.4291620	.9556917
	10	-.6124065	..24206506	.780	-1.6544241	.4296112
	11	-.3924528	..23359178	.985	-1.3979954	.6130898
	1	..4917077	..18521704	.720	-.3055962	1.2890116
	2	..2798575	..18521704	.994	-.5174464	1.0771614
	3	..3773596	..22431903	.985	-.5882667	1.3429859
	4					
	5	..0489163	..20835818	1.000	-.8480032	.9458359
	6	-.3090149	..22431903	.997	-1.2746411	.6566114
5	7	-.2655415	..20022005	.998	-1.1274288	.5963459
	8	-.2560103	..21309193	.999	-1.1733072	.6612866
	9	..1406245	..23105912	1.000	-.8540158	1.1352648
	10	-.2350468	..18775414	.999	-1.0432722	.5731785
	11	-.0150932	..17669533	1.000	-.7757137	.7455272
	1	..4427914	..22526281	.952	-.5268976	1.4124803
	2	..2309411	..22526281	1.000	-.7387478	1.2006301
	3	..3284433	..25837378	.998	-.7837785	1.4406650
	4	-.0489163	..20835818	1.000	-.9458359	.8480032

	5					
	6	-.3579312	..25837378	.997	-1.4701530	.7542905
	7	-.3144578	..23775208	.998	-1.3379093	.7089937
	8	-.3049266	..24868886	.999	-1.3754577	.7656044
	9	..0917081	..26424666	1.000	-1.0457946	1.2292109
	10	-.2839632	..22735346	.999	-1.2626518	.6947254
	11	-.0640095	..21830992	1.000	-1.0037684	.8757493
6	1	..8007226	..24010255	..351	-.2328470	1.8342922
	2	..5888723	..24010255	..813	-.4446972	1.6224419
	3	..6863745	..27140912	..780	-.4819605	1.8547094
	4	..3090149	..22431903	..997	-.6566114	1.2746411
	5	..3579312	..25837378	..997	-.7542905	1.4701530
	6					
	7	..0434734	..25185700	1.000	-1.0406956	1.1276424
	8	..0530046	..26220612	1.000	-1.0757142	1.1817234
	9	..4496394	..27700577	..988	-.7427875	1.6420662
	10	..0739680	..24206506	1.000	-.9680496	1.1159856
	11	..2939217	..23359178	..999	-.7116210	1.2994643
7	1	..7572492	..21775737	..283	-.1801311	1.6946295
	2	..5453989	..21775737	..791	-.3919813	1.4827792
	3	..6429011	..25185700	..769	-.4412679	1.7270700
	4	..2655415	..20022005	..998	-.5963459	1.1274288
	5	..3144578	..23775208	..998	-.7089937	1.3379093
	6	-.0434734	..25185700	1.000	-1.1276424	1.0406956
	7					
	8	..0095312	..24191132	1.000	-1.0318246	1.0508870
	9	..4061660	..25787834	..991	-.7039231	1.5162550
	10	..0304946	..21991939	1.000	-.9161925	..9771817
	11	..2504483	..21055678	..999	-.6559356	1.1568322
8	1	..7477180	..22964837	..392	-.2408494	1.7362855
	2	..5358678	..22964837	..858	-.4526997	1.5244352
	3	..6333699	..26220612	..828	-.4953489	1.7620887
	4	..2560103	..21309193	..999	-.6612866	1.1733072
	5	..3049266	..24868886	..999	-.7656044	1.3754577
	6	-.0530046	..26220612	1.000	-1.1817234	1.0757142
	7	-.0095312	..24191132	1.000	-1.0508870	1.0318246
	8					
	9	..3966348	..26799503	..995	-.7570036	1.5502731
	10	..0209635	..23169945	1.000	-.9764333	1.0183602
	11	..2409171	..22283235	1.000	-.7183094	1.2001436
9	1	..3510832	..24641128	..996	-.7096435	1.4118100
	2	..1392330	..24641128	1.000	-.9214938	1.1999598

	3	..2367351	..27700577	1.000	-.9556917	1.4291620
	4	-.1406245	..23105912	1.000	-1.1352648	.8540158
	5	-.0917081	..26424666	1.000	-1.2292109	1.0457946
	6	-.4496394	..27700577	.988	-1.6420662	.7427875
	7	-.4061660	..25787834	.991	-1.5162550	.7039231
	8	-.3966348	..26799503	.995	-1.5502731	.7570036
	9					
	10	-.3756713	..24832395	.993	-1.4446316	.6932889
	11	-.1557177	..24007167	1.000	-1.1891543	.8777189
10	1	..7267546	..20635363	..263	-.1615360	1.6150451
	2	..5149043	..20635363	..795	-.3733863	1.4031949
	3	..6124065	..24206506	..780	-.4296112	1.6544241
	4	..2350468	..18775414	.999	-.5731785	1.0432722
	5	..2839632	..22735346	.999	-.6947254	1.2626518
	6	-.0739680	..24206506	1.000	-1.1159856	.9680496
	7	-.0304946	..21991939	1.000	-.9771817	.9161925
	8	-.0209635	..23169945	1.000	-1.0183602	.9764333
	9	..3756713	..24832395	.993	-.6932889	1.4446316
	10					
	11	..2199536	..19874029	1.000	-.6355638	1.0754711
11	1	..5068009	..19634521	..756	-.3384064	1.3520083
	2	..2949507	..19634521	.994	-.5502567	1.1401580
	3	..3924528	..23359178	.985	-.6130898	1.3979954
	4	..0150932	..17669533	1.000	-.7455272	..7757137
	5	..0640095	..21830992	1.000	-.8757493	1.0037684
	6	-.2939217	..23359178	.999	-1.2994643	.7116210
	7	-.2504483	..21055678	.999	-1.1568322	.6559356
	8	-.2409171	..22283235	1.000	-1.2001436	.7183094
	9	..1557177	..24007167	1.000	-.8777189	1.1891543
	10	-.2199536	..19874029	1.000	-1.0754711	.6355638
	11					
BART factor	1					
score 2 for						
analysis 1	1					
	2	..1399745	..19560578	1.000	-.7020498	..9819988
	3	-.1927670	..23016870	1.000	-1.1835743	.7980403
	4	..0915742	..17755400	1.000	-.6727425	..8558910
	5	-.0279857	..21594294	1.000	-.9575553	.9015840
	6	..0963535	..23016870	1.000	-.8944538	1.0871608
	7	..4645045	..20874802	.893	-.4340932	1.3631022
	8	-.3351084	..22014705	.993	-1.2827755	.6125587
	9	1.4968046(*)	..23621643	.000	..4799637	2.5136456
	10	..2090330	..19781609	1.000	-.6425061	1.0605720
	11	..3193138	..18822175	.984	-.4909245	1.1295521

2	1	..1399745	..19560578	1.000	-.9819988	..7020498
	2					
	3	-.3327415	..23016870	..995	-1.3235489	..6580658
	4	-.0484003	..17755400	1.000	-.8127171	..7159165
	5	-.1679602	..21594294	1.000	-1.0975298	..7616095
	6	-.0436210	..23016870	1.000	-1.0344283	..9471863
	7	..3245300	..20874802	..992	-.5740677	1.2231277
	8	-.4750829	..22014705	..912	-1.4227500	..4725842
	9	1.3568301(*)	..23621643	..000	..3399891	2.3736711
	10					
		..0690585	..19781609	1.000	-.7824806	..9205975
3	11	..1793393	..18822175	1.000	-.6308990	..9895776
	1	..1927670	..23016870	1.000	-.7980403	1.1835743
	2	..3327415	..23016870	..995	-.6580658	1.3235489
	3					
	4	..2843412	..21503821	..998	-.6413338	1.2100163
	5	..1647814	..24768399	1.000	-.9014241	1.2309868
	6	..2891205	..26018001	1.000	-.8308765	1.4091176
	7	..6572715	..24143684	..686	-.3820417	1.6965848
	8	-.1423414	..25135777	1.000	-1.2243613	..9396786
	9	1.6895716(*)	..26554512	..000	..5464795	2.8326638
	10	..4018000	..23205002	..981	-.5971059	1.4007058
4	11	..5120808	..22392730	..874	-.4518592	1.4760208
	1	-.0915742	..17755400	1.000	-.8558910	..6727425
	2	..0484003	..17755400	1.000	-.7159165	..8127171
	3	-.2843412	..21503821	..998	-1.2100163	..6413338
	4					
	5	-.1195599	..19973771	1.000	-.9793709	..7402511
	6	..0047793	..21503821	1.000	-.9208958	..9304544
	7	..3729303	..19193628	..956	-.4532979	1.1991585
	8	-.4266826	..20427560	..929	-1.3060279	..4526627
	9	1.4052304(*)	..22149943	..000	..4517417	2.3587191
	10	..1174587	..17998612	1.000	-.6573276	..8922451
5	11	..2277396	..16938485	..998	-.5014115	..9568906
	1	..0279857	..21594294	1.000	-.9015840	..9575553
	2	..1679602	..21594294	1.000	-.7616095	1.0975298
	3	-.1647814	..24768399	1.000	-1.2309868	..9014241
	4	..1195599	..19973771	1.000	-.7402511	..9793709
	5					

6	6	..1243392	..24768399	1.000	-.9418663	1.1905446
	7	..4924902	..22791548	..911	-.4886177	1.4735981
	8	-.3071227	..23839977	..998	-1.3333623	..7191169
	9	1.5247903(*)	..25331390	..000	..4343498	2.6152307
	10	..2370186	..21794709	1.000	-.7011783	1.1752156
	11	..3472994	..20927771	..986	-.5535784	1.2481773
	1	-.0963535	..23016870	1.000	-1.0871608	..8944538
	2	..0436210	..23016870	1.000	-.9471863	1.0344283
	3	-.2891205	..26018001	1.000	-1.4091176	..8308765
	4	-.0047793	..21503821	1.000	-.9304544	..9208958
	5	-.1243392	..24768399	1.000	-1.1905446	..9418663
7	6					
	7	..3681510	..24143684	..993	-.6711623	1.4074643
	8	-.4314619	..25135777	..982	-1.5134818	..6505581
	9	1.4004511(*)	..26554512	..002	..2573589	2.5435433
	10	..1126795	..23205002	1.000	-.8862264	1.1115853
	11	..2229603	..22392730	1.000	-.7409797	1.1869003
	1	-.4645045	..20874802	..893	-1.3631022	..4340932
	2	-.3245300	..20874802	..992	-1.2231277	..5740677
	3	-.6572715	..24143684	..686	-1.6965848	..3820417
	4	-.3729303	..19193628	..956	-1.1991585	..4532979
	5	-.4924902	..22791548	..911	-1.4735981	..4886177
8	6	-.3681510	..24143684	..993	-1.4074643	..6711623
	7					
	8	-.7996129	..23190264	..296	-1.7978843	..1986585
	9	1.0323001	..24720905	..069	-.0318608	2.0964610
	10	-.2554715	..21082059	..999	-1.1629910	..6520479
	11	-.1451907	..20184534	1.000	-1.0140745	..7236930
	1	..3351084	..22014705	..993	-.6125587	1.2827755
	2	..4750829	..22014705	..912	-.4725842	1.4227500
	3	..1423414	..25135777	1.000	-.9396786	1.2243613
	4	..4266826	..20427560	..929	-.4526627	1.3060279
	5	..3071227	..23839977	..998	-.7191169	1.3333623
9	6	..4314619	..25135777	..982	-.6505581	1.5134818
	7	..7996129	..23190264	..296	-.1986585	1.7978843
	8					
	9	1.8319130(*)	..25690718	..000	..7260045	2.9378215
	10	..5441413	..22211327	..814	-.4119898	1.5002724
	11	..6544222	..21361303	..497	-.2651180	1.5739623
	1	-1.4968046(*)	..23621643	..000	-2.5136456	-.4799637
	2	-1.3568301(*)	..23621643	..000	-2.3736711	-.3399891
	3	-1.6895716(*)	..26554512	..000	-2.8326638	-.5464795



		4	-1.4052304(*)	..22149943	.000	-2.3587191	-.4517417
		5	-1.5247903(*)	..25331390	.000	-2.6152307	-.4343498
		6	-1.4004511(*)	..26554512	.002	-2.5435433	-.2573589
		7	-1.0323001	..24720905	.069	-2.0964610	.0318608
		8	-1.8319130(*)	..25690718	.000	-2.9378215	-.7260045
		9					
		10	-1.2877717(*)	..23804996	.001	-2.3125054	-.2630379
		11	-1.1774908(*)	..23013910	.004	-2.1681707	-.1868109
10		1	-.2090330	..19781609	1.000	-1.0605720	.6425061
		2	-.0690585	..19781609	1.000	-.9205975	.7824806
		3	-.4018000	..23205002	.981	-1.4007058	.5971059
		4	-.1174587	..17998612	1.000	-.8922451	.6573276
		5	-.2370186	..21794709	1.000	-1.1752156	.7011783
		6	-.1126795	..23205002	1.000	-1.1115853	.8862264
		7	.2554715	.21082059	.999	-.6520479	1.1629910
		8	-.5441413	..22211327	.814	-1.5002724	.4119898
		9	1.2877717(*)	..23804996	.001	..2630379	2.3125054
		10					
		11	..1102808	..19051774	1.000	-.7098410	..9304027
11		1	-.3193138	..18822175	.984	-1.1295521	.4909245
		2	-.1793393	..18822175	1.000	-.9895776	.6308990
		3	-.5120808	..22392730	.874	-1.4760208	.4518592
		4	-.2277396	..16938485	.998	-.9568906	.5014115
		5	-.3472994	..20927771	.986	-1.2481773	.5535784
		6	-.2229603	..22392730	1.000	-1.1869003	.7409797
		7	..1451907	.20184534	1.000	-.7236930	1.0140745
		8	-.6544222	..21361303	.497	-1.5739623	.2651180
		9	1.1774908(*)	..23013910	.004	..1868109	2.1681707
		10	-.1102808	..19051774	1.000	-.9304027	.7098410
		11					
BART factor	1	1					
score 3 for		2	..0181687	..20343729	1.000	-.8575679	..8939053
analysis 1		3	..4793758	..23938401	.946	-.5511007	1.5098522
		4	..3796183	..18466276	.936	-.4152996	1.1745361
		5	..3203125	..22458868	.996	-.6464745	1.2870996
		6	..4910056	..23938401	.937	-.5394709	1.5214820
		7	..4896203	..21710570	.884	-.4449547	1.4241953
		8	..0529037	..22896111	1.000	-.9327053	1.0385127
		9	..0410520	..24567386	1.000	-1.0165004	1.0986044
		10	..0909540	..20573609	1.000	-.7946782	..9765862
		11	-.3444709	..19575762	.979	-1.1871488	.4982070
2		1	-.0181687	..20343729	1.000	-.8939053	.8575679

	2					
	3	..4612071	..23938401	..959	-.5692694	1.4916835
	4	..3614495	..18466276	..954	-.4334683	1.1563674
	5	..3021438	..22458868	..998	-.6646432	1.2689308
	6	..4728369	..23938401	..951	-.5576396	1.5033133
	7	..4714516	..21710570	..908	-.4631235	1.4060266
	8	..0347350	..22896111	1.000	-.9508740	1.0203440
	9	..0228832	..24567386	1.000	-1.0346692	1.0804356
	10	..0727853	..20573609	1.000	-.8128470	..9584175
	11	-.3626396	..19575762	..969	-1.2053176	..4800383
3	1	-.4793758	..23938401	..946	-1.5098522	..5511007
	2	-.4612071	..23938401	..959	-1.4916835	..5692694
	3					
	4	-.0997575	..22364773	1.000	-1.0624940	..8629790
	5	-.1590632	..25760056	1.000	-1.2679565	..9498300
	6	..0116298	..27059689	1.000	-1.1532087	1.1764684
	7	..0102445	..25110328	1.000	-1.0706799	1.0911690
	8	-.4264721	..26142143	..988	-1.5518130	..6988689
	9	-.4383238	..27617679	..990	-1.6271822	..7505346
	10	-.3884218	..24134065	..989	-1.4273210	..6504774
	11	-.8238467	..23289272	..256	-1.8263801	..1786867
4	1	-.3796183	..18466276	..936	-1.1745361	..4152996
	2	-.3614495	..18466276	..954	-1.1563674	..4334683
	3	..0997575	..22364773	1.000	-.8629790	1.0624940
	4					
	5	-.0593057	..20773464	1.000	-.9535411	..8349297
	6	..1113873	..22364773	1.000	-.8513492	1.0741238
	7	..1100020	..19962087	1.000	-.7493060	..9693101
	8	-.3267145	..21245422	..993	-1.2412663	..5878372
	9	-.3385663	..23036764	..995	-1.3302300	..6530974
	10	-.2886643	..18719226	..992	-1.0944709	..5171423
	11	-.7240892	..17616654	..081	-1.4824334	..0342550
5	1	-.3203125	..22458868	..996	-1.2870996	..6464745
	2	-.3021438	..22458868	..998	-1.2689308	..6646432
	3	..1590632	..25760056	1.000	-.9498300	1.2679565
	4	..0593057	..20773464	1.000	-.8349297	..9535411
	5					
	6	..1706930	..25760056	1.000	-.9382002	1.2795863
	7	..1693078	..23704057	1.000	-.8510809	1.1896964
	8	-.2674088	..24794463	1.000	-1.3347362	..7999185
	9	-.2792606	..26345587	1.000	-1.4133592	..8548380
	10	-.2293586	..22667308	1.000	-1.2051183	..7464012

6	11	-.6647835	..21765659	.503	-1.6017299	.2721630
	1	-.4910056	..23938401	.937	-1.5214820	.5394709
	2	-.4728369	..23938401	.951	-1.5033133	.5576396
	3	-.0116298	..27059689	1.000	-1.1764684	1.1532087
	4	-.1113873	..22364773	1.000	-1.0741238	.8513492
	5	-.1706930	..25760056	1.000	-1.2795863	.9382002
	6					
	7	-.0013853	..25110328	1.000	-1.0823097	1.0795391
	8	-.4381019	..26142143	.985	-1.5634428	.6872391
	9	-.4499536	..27617679	.988	-1.6388120	.7389047
	10	-.4000516	..24134065	.986	-1.4389508	.6388476
7	11	-.8354765	..23289272	.235	-1.8380099	.1670569
	1	-.4896203	..21710570	.884	-1.4241953	.4449547
	2	-.4714516	..21710570	.908	-1.4060266	.4631235
	3	-.0102445	..25110328	1.000	-1.0911690	1.0706799
	4	-.1100020	..19962087	1.000	-.9693101	.7493060
	5	-.1693078	..23704057	1.000	-1.1896964	.8510809
	6	..0013853	..25110328	1.000	-1.0795391	1.0823097
	7					
	8	-.4367166	..24118737	.974	-1.4749560	.6015228
	9	-.4485683	..25710660	.980	-1.5553353	.6581986
	10	-.3986663	..21926125	.973	-1.3425203	.5451877
8	11	-.8340912	..20992666	.110	-1.7377626	.0695802
	1	-.0529037	..22896111	1.000	-1.0385127	.9327053
	2	-.0347350	..22896111	1.000	-1.0203440	.9508740
	3	..4264721	..26142143	..988	-.6988689	1.5518130
	4	..3267145	..21245422	..993	-.5878372	1.2412663
	5	..2674088	..24794463	1.000	-.7999185	1.3347362
	6	..4381019	..26142143	..985	-.6872391	1.5634428
	7	..4367166	..24118737	..974	-.6015228	1.4749560
	8					
	9	-.0118518	..26719302	1.000	-1.1620377	1.1383342
	10	..0380503	..23100606	1.000	-.9563616	1.0324622
9	11	-.3973746	..22216549	.976	-1.3537305	.5589813
	1	-.0410520	..24567386	1.000	-1.0986044	1.0165004
	2	-.0228832	..24567386	1.000	-1.0804356	1.0346692
	3	..4383238	..27617679	..990	-.7505346	1.6271822
	4	..3385663	..23036764	..995	-.6530974	1.3302300
	5	..2792606	..26345587	1.000	-.8548380	1.4133592
	6	..4499536	..27617679	..988	-.7389047	1.6388120
	7	..4485683	..25710660	..980	-.6581986	1.5553353
	8	..0118518	..26719302	1.000	-1.1383342	1.1620377

	9					
	10	..0499020	..24758080	1.000	-1.0158592	1.1156632
	11	-.3855229	..23935322	.989	-1.4158668	.6448211
10	1	-.0909540	..20573609	1.000	-.9765862	.7946782
	2	-.0727853	..20573609	1.000	-.9584175	.8128470
	3	..3884218	..24134065	..989	-.6504774	1.4273210
	4	..2886643	..18719226	..992	-.5171423	1.0944709
	5	..2293586	..22667308	1.000	-.7464012	1.2051183
	6	..4000516	..24134065	..986	-.6388476	1.4389508
	7	..3986663	..21926125	..973	-.5451877	1.3425203
	8	-.0380503	..23100606	1.000	-1.0324622	.9563616
	9	-.0499020	..24758080	1.000	-1.1156632	1.0158592
	10					
	11	-.4354249	..19814554	.901	-1.2883821	.4175323
11	1	..3444709	..19575762	..979	-.4982070	1.1871488
	2	..3626396	..19575762	..969	-.4800383	1.2053176
	3	..8238467	..23289272	..256	-.1786867	1.8263801
	4	..7240892	..17616654	..081	-.0342550	1.4824334
	5	..6647835	..21765659	..503	-.2721630	1.6017299
	6	..8354765	..23289272	..235	-.1670569	1.8380099
	7	..8340912	..20992666	..110	-.0695802	1.7377626
	8	..3973746	..22216549	..976	-.5589813	1.3537305
	9	..3855229	..23935322	..989	-.6448211	1.4158668
	10	..4354249	..19814554	..901	-.4175323	1.2883821
	11					
BART factor	1					
score 4 for						
analysis 1						
	1					
	2	-.0214408	..20460798	1.000	-.9022168	.8593353
	3	..6868955	..24076156	..615	-.3495109	1.7233019
	4	..0461543	..18572541	1.000	-.7533380	..8456466
	5	..1543577	..22588109	1.000	-.8179928	1.1267081
	6	..5837056	..24076156	..824	-.4527008	1.6201120
	7	-.0446677	..21835505	1.000	-.9846208	.8952855
	8	..0450662	..23027868	1.000	-.9462146	1.0363470
	9	..5711604	..24708761	..866	-.4924778	1.6347986
	10	..1305901	..20692001	1.000	-.7601385	1.0213188
	11	-.1435300	..19688412	1.000	-.9910572	.7039972
2	1	..0214408	..20460798	1.000	-.8593353	..9022168
	2					
	3	..7083362	..24076156	..566	-.3280702	1.7447426
	4	..0675950	..18572541	1.000	-.7318972	..8670873
	5	..1757984	..22588109	1.000	-.7965520	1.1481489
	6	..6051464	..24076156	..787	-.4312600	1.6415528

3	7	-.0232269	..21835505	1.000	-.9631800	.9167262
	8	..0665070	..23027868	1.000	-.9247738	1.0577877
	9	..5926012	..24708761	..834	-.4710370	1.6562393
	10	..1520309	..20692001	1.000	-.7386978	1.0427596
	11	-.1220892	..19688412	1.000	-.9696164	.7254379
	1	-.6868955	..24076156	.615	-1.7233019	.3495109
	2	-.7083362	..24076156	.566	-1.7447426	.3280702
	3					
	4	-.6407412	..22493472	.618	-1.6090178	.3275354
	5	-.5325378	..25908294	.936	-1.6478123	.5827367
	6	-.1031899	..27215406	1.000	-1.2747316	1.0683518
4	7	-.7315631	..25254828	.591	-1.8187078	.3555816
	8	-.6418293	..26292580	.818	-1.7736461	.4899875
	9	-.1157351	..27776607	1.000	-1.3114348	1.0799647
	10	-.5563054	..24272946	.872	-1.6011830	.4885723
	11	-.8304255	..23423292	.253	-1.8387280	.1778771
	1	-.0461543	..18572541	1.000	-.8456466	.7533380
	2	-.0675950	..18572541	1.000	-.8670873	.7318972
	3	..6407412	..22493472	.618	-.3275354	1.6090178
	4					
	5	..1082034	..20893006	1.000	-.7911780	1.0075847
	6	..5375513	..22493472	.838	-.4307253	1.5058279
5	7	-.0908219	..20076960	1.000	-.9550749	.7734311
	8	-.0010881	..21367680	1.000	-.9209027	.9187265
	9	..5250061	..23169331	.881	-.4723642	1.5223764
	10	..0844359	..18826947	1.000	-.7260078	..8948795
	11	-.1896843	..17718030	1.000	-.9523924	.5730239
	1	-.1543577	..22588109	1.000	-1.1267081	.8179928
	2	-.1757984	..22588109	1.000	-1.1481489	.7965520
	3	..5325378	..25908294	.936	-.5827367	1.6478123
	4	-.1082034	..20893006	1.000	-1.0075847	.7911780
	5					
	6	..4293479	..25908294	..986	-.6859265	1.5446224
6	7	-.1990253	..23840464	1.000	-1.2252859	.8272352
	8	-.1092915	..24937144	1.000	-1.1827608	.9641779
	9	..4168027	..26497194	.991	-.7238221	1.5574276
	10	-.0237675	..22797748	1.000	-1.0051423	.9576072
	11	-.2978877	..21890911	.997	-1.2402258	.6444505
	1	-.5837056	..24076156	.824	-1.6201120	.4527008
	2	-.6051464	..24076156	.787	-1.6415528	.4312600
	3	..1031899	..27215406	1.000	-1.0683518	1.2747316
	4	-.5375513	..22493472	.838	-1.5058279	.4307253

7	5	-.4293479	..25908294	.986	-1.5446224	.6859265
	6					
	7	-.6283733	..25254828	.798	-1.7155179	.4587714
	8	-.5386394	..26292580	.937	-1.6704562	.5931774
	9	-.0125452	..27776607	1.000	-1.2082449	1.1831546
	10	-.4531155	..24272946	.967	-1.4979931	.5917622
	11	-.7272356	..23423292	.474	-1.7355381	.2810670
	1	..0446677	..21835505	1.000	-.8952855	..9846208
	2	..0232269	..21835505	1.000	-.9167262	..9631800
	3	..7315631	..25254828	.591	-.3555816	1.8187078
	4	..0908219	..20076960	1.000	-.7734311	..9550749
8	5	..1990253	..23840464	1.000	-.8272352	1.2252859
	6	..6283733	..25254828	.798	-.4587714	1.7155179
	7					
	8	..0897338	..24257530	1.000	-.9544802	1.1339479
	9	..6158281	..25858614	.841	-.4973078	1.7289639
	10	..1752578	..22052300	1.000	-.7740277	1.1245433
	11	-.0988623	..21113470	1.000	-1.0077340	.8100093
	1	-.0450662	..23027868	1.000	-1.0363470	.9462146
	2	-.0665070	..23027868	1.000	-1.0577877	.9247738
	3	..6418293	..26292580	.818	-.4899875	1.7736461
	4	..0010881	..21367680	1.000	-.9187265	..9209027
9	5	..1092915	..24937144	1.000	-.9641779	1.1827608
	6	..5386394	..26292580	.937	-.5931774	1.6704562
	7	-.0897338	..24257530	1.000	-1.1339479	.9544802
	8					
	9	..5260942	..26873060	.954	-.6307105	1.6828990
	10	..0855239	..23233540	1.000	-.9146104	1.0856582
	11	-.1885962	..22344396	1.000	-1.1504555	.7732631
	1	-.5711604	..24708761	.866	-1.6347986	.4924778
	2	-.5926012	..24708761	.834	-1.6562393	.4710370
	3	..1157351	..27776607	1.000	-1.0799647	1.3114348
	4	-.5250061	..23169331	.881	-1.5223764	.4723642
10	5	-.4168027	..26497194	.991	-1.5574276	.7238221
	6	..0125452	..27776607	1.000	-1.1831546	1.2082449
	7	-.6158281	..25858614	.841	-1.7289639	.4973078
	8	-.5260942	..26873060	.954	-1.6828990	.6307105
	9					
	10	-.4405703	..24900553	.978	-1.5124645	.6313239
	11	-.7146904	..24073059	.551	-1.7509635	.3215827
	1	-.1305901	..20692001	1.000	-1.0213188	.7601385
	2	-.1520309	..20692001	1.000	-1.0427596	.7386978

11	3	.5563054	24272946	872	-.4885723	1.6011830
	4	-.0844359	..18826947	1.000	-.8948795	.7260078
	5	..0237675	..22797748	1.000	-.9576072	1.0051423
	6	..4531155	..24272946	..967	-.5917622	1.4979931
	7	-.1752578	..22052300	1.000	-1.1245433	.7740277
	8	-.0855239	..23233540	1.000	-1.0856582	.9146104
	9	..4405703	..24900553	..978	-.6313239	1.5124645
	10					
	11	-.2741201	..19928578	.997	-1.1319857	.5837455
	1	..1435300	..19688412	1.000	-.7039972	..9910572
	2	..1220892	..19688412	1.000	-.7254379	..9696164
	3	..8304255	..23423292	..253	-.1778771	1.8387280
	4	..1896843	..17718030	1.000	-.5730239	..9523924
	5	..2978877	..21890911	..997	-.6444505	1.2402258
	6	..7272356	..23423292	..474	-.2810670	1.7355381
	7	..0988623	..21113470	1.000	-.8100093	1.0077340
	8	..1885962	..22344396	1.000	-.7732631	1.1504555
	9	..7146904	..24073059	..551	-.3215827	1.7509635
	10	..2741201	..19928578	..997	-.5837455	1.1319857
	11					

Based on observed means.

\* The mean difference is significant at the .05 level.



## Homogeneous Subsets

### BART factor score 1 for analysis 1

Scheffe

Centre	N	Subset
		1
1	46	-.4599551
3	26	-.3456070
2	46	-.2481049
9	24	-.1088719
5	32	-.0171638
4	71	.0317526
11	54	.0468458
10	44	.2667994
8	30	.2877629
7	36	.2972941
6	26	.3407675
Sig.		.296

Means for groups in homogeneous subsets are displayed. Based on Type III Sum of Squares The error term is Mean Square(Error) = .958.

a Uses Harmonic Mean Sample Size = 35.511.

b The group sizes are unequal. The harmonic mean of the group sizes is used. Type I error levels are not guaranteed.

c Alpha = .05

### BART factor score 2 for analysis 1

Scheffe

Centre	N	Subset	
		1	2
9	24	-1.3161818	
7	36		-.2838817
11	54		-.1386910
10	44		-.0284102
2	46		.0406483
6	26		.0842693
4	71		.0890486
1	46		.1806228
5	32		.2086085
3	26		.3733898
8	30		.5157312
Sig.		1.000	.233

Means for groups in homogeneous subsets are displayed. Based on Type III Sum of Squares The error term is Mean Square(Error) = .880.

a Uses Harmonic Mean Sample Size = 35.511.

b Alpha = .05.

**BART factor score 3 for analysis 1**

Scheffe

Centre	N	Subset
		1
6	26	-.3326888
7	36	-.3313035
3	26	-.3210590
4	71	-.2213015
5	32	-.1619957
10	44	.0673628
8	30	.1054131
9	24	.1172648
2	46	.1401481
1	46	.1583168
11	54	.5027877
Sig.		.227

Means for groups in homogeneous subsets are displayed. Based on Type III Sum of Squares The error term is Mean Square(Error) = ..952.

a Uses Harmonic Mean Sample Size = 35.511.

b The group sizes are unequal. The harmonic mean of the group sizes is used. Type I error levels are not guaranteed.

c Alpha = .05.

**BART factor score 4 for analysis 1**

Scheffe

Centre	N	Subset
		1
3	26	-.5680153
6	26	-.4648254
9	24	-.4522802
5	32	-.0354774
10	44	-.0117099
4	71	.0727259
8	30	.0738140
1	46	.1188802
2	46	.1403210
7	36	.1635479
11	54	.2624102
Sig.		.244

Means for groups in homogeneous subsets are displayed. Based on Type III Sum of Squares The error term is Mean Square(Error) = ..963.

a Uses Harmonic Mean Sample Size = 35.511.

b The group sizes are unequal. The harmonic mean of the group sizes is used. Type I error levels are not guaranteed.

c Alpha = .05.

## Factor Analysis - parents

### Descriptive Statistics

	Mean	Std. Deviation	Analysis N
Q1 In general I am satisfied with the CSK clubs my children participate in	2.88	.35	156
Q2 Does the CSK programme encourage parental involvement	1.87	.73	156
Q3 The CSK programme organizes enrichment activities	2.56	.63	156
Q4 Are you familiar with the club programme	2.62	.69	156
Q5 Does your child share his experiences from the club with you	2.75	.46	156
Q6 Does your child express satisfaction with his studies in the club	2.78	.45	156
Q7 Have you shown involvement in choosing the clubs for your children	2.35	.88	156
Q8 Do you receive circulars describing and reporting on what occurs in CSK	1.66	.78	156
Q9 Do you feel a change in your child academically/socially in light of his participating in the clubs	2.11	.87	156
Q10 Have you taken personal initiative regarding the CSK framework	1.33	.70	156
Q11 Have you participated in events within the project's framework	2.04	.91	156
Q12 Have you been asked to pay additional money beyond registration fees for the club	1.13	.45	156
Q13 Did you receive a feedback page at the end of the year of activities	1.48	.84	156
Q14 Has there been any dialogue between you and the club's teachers	1.33	.64	156
Q15 Have you been invited to visit the clubs our children participate in over the course of the year	1.62	.85	156

### Communalities

	Initial	Extraction
Q1 In general I am satisfied with the CSK clubs my children participate in	1.000	.678
Q2 Does the CSK programme encourage parental involvement	1.000	.648
Q3 The CSK programme organizes enrichment activities	1.000	.519
Q4 Are you familiar with the club programme	1.000	.403
Q5 Does your child share his experiences from the club with you	1.000	.611
Q6 Does your child express satisfaction with his studies in the club	1.000	.548
Q7 Have you shown involvement in choosing the clubs for your children	1.000	.466
Q8 Do you receive circulars describing and reporting on what occurs in CSK	1.000	.571
Q9 Do you feel a change in your child academically/socially in light of his participating in the clubs	1.000	.564
Q10 Have you taken personal initiative regarding the CSK framework	1.000	.711
Q11 Have you participated in events within the project's framework	1.000	.461
Q12 Have you been asked to pay additional money beyond registration fees for the club	1.000	.670
Q13 Did you receive a feedback page at the end of the year of activities	1.000	.443
Q14 Has there been any dialogue between you and the club's teachers	1.000	.570
Q15 Have you been invited to visit the clubs our children participate in over the course of the year	1.000	.658

Extraction Method: Principal Component Analysis.

### Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	3.432	22.883	22.883	3.432	22.883	22.883	2.137	14.249	14.249
2	1.622	10.812	33.695	1.622	10.812	33.695	1.857	12.381	26.630
3	1.293	8.620	42.315	1.293	8.620	42.315	1.600	10.668	37.298
4	1.123	7.489	49.804	1.123	7.489	49.804	1.563	10.423	47.721
5	1.050	6.998	56.803	1.050	6.998	56.803	1.362	9.082	56.803
6	.931	6.205	63.007						
7	.869	5.792	68.799						
8	.814	5.429	74.228						
9	.766	5.108	79.336						
10	.731	4.873	84.209						
11	.628	4.188	88.397						
12	.550	3.666	92.062						
13	.461	3.076	95.138						
14	.450	2.998	98.137						
15	.279	1.863	100.000						

Extraction Method: Principal Component Analysis.

### Component Matrix(a)

	Component				
	1	2	3	4	5
Q1 In general I am satisfied with the CSK clubs my children participate in	.365	.552	-.326		
Q2 Does the CSK programme encourage parental involvement	.734				-.301
Q3 The CSK programme organizes enrichment activities	.547			.400	
Q4 Are you familiar with the club programme	.441				.430
Q5 Does your child share his experiences from the club with you	.407	.460			.383
Q6 Does your child express satisfaction with his studies in the club	.477	.531			
Q7 Have you shown involvement in choosing the clubs for your children			.582	.310	
Q8 Do you receive circulars describing and reporting on what occurs in CSK	.657				
Q9 Do you feel a change in your child academically/socially in light of his participating in the clubs	.544	.449			
Q10 Have you taken personal initiative regarding the CSK framework			.558		-.572
Q11 Have you participated in events within the project's framework	.575	-.335			
Q12 Have you been asked to pay additional money beyond registration fees for the club			-.324	.689	
Q13 Did you receive a feedback page at the end of the year of activities	.442		.421		
Q14 Has there been any dialogue between you and the club's teachers	.486	-.383		-.361	
Q15 Have you been invited to visit the clubs our children participate in over the course of the year	.559	-.342		-.361	

Extraction Method: Principal Component Analysis.

a 5 components extracted.

### Rotated Component Matrix(a)

	Component				
	1.00	2.00	3.00	4.00	5.00
Q1 In general I am satisfied with the CSK clubs my children participate in				.80	
Q2 Does the CSK programme encourage parental involvement	.37		.39		.49
Q3 The CSK programme organizes enrichment activities			.63		
Q4 Are you familiar with the club programme		.51			
Q5 Does your child share his experiences from the club with you		.78			
Q6 Does your child express satisfaction with his studies in the club		.40		.59	
Q7 Have you shown involvement in choosing the clubs for your children		.32		-.51	
Q8 Do you receive circulars describing and reporting on what occurs in CSK	.47		.54		
Q9 Do you feel a change in your child academically/socially in light of his participating in the clubs		.67			
Q10 Have you taken personal initiative regarding the CSK framework					.84
Q11 Have you participated in events within the project's framework	.54		.30		
Q12 Have you been asked to pay additional money beyond registration fees for the club			.78		
Q13 Did you receive a feedback page at the end of the year of activities	.40	.35			.34
Q14 Has there been any dialogue between you and the club's teachers	.75				
Q15 Have you been invited to visit the clubs our children participate in over the course of the year	.80				

**Extraction Method: Principal Component Analysis.**

**Rotation Method: Varimax with Kaiser Normalization.**

a. Rotation converged in 10 iterations.

### Component Transformation Matrix

Component	1	2	3	4	5
1	.611	.498	.438	.324	.287
2	-.555	.544	-.180	.585	-.147
3	-.159	.437	-.335	-.496	.652
4	-.477	.129	.800	-.338	-.049
5	.258	.499	-.154	-.439	-.684

**Extraction Method: Principal Component Analysis.**

**Rotation Method: Varimax with Kaiser Normalization.**

## Reliability

\*\*\*\*\* Method 1 (space saver) will be used for this analysis \*\*\*\*\*

### RELIABILITY ANALYSIS - SCALE (ALPHA)

1. Q11 Have you participated in events within
2. Q13 Did you receive a feedback page at the e
3. Q14 Has there been any dialogue between you
4. Q15 Have you been invited to visit the clubs

#### Item-total Statistics

	Scale Mean If Item Deleted	Scale Variance if Item Deleted	Corrected Item- Total Correlation	Alpha if Item Deleted
Q11	4.4551	2.8639	.3811	.5177
Q13	5.0359	3.3601	.2540	.6128
Q14	5.1677	3.2970	.4685	.4710
Q15	4.9042	2.8823	.4267	.4775

#### Reliability Coefficients

N of Cases = 167.0 N of Items = 4

Alpha = .5926

## Reliability

\*\*\*\*\* Method 1 (space saver) will be used for this analysis \*\*\*\*\*

### RELIABILITY ANALYSIS - SCALE (ALPHA)

1. Q4 Are you familiar with the club programme
2. Q5 Does your child share his experiences fr
3. Q9 Do you feel a change in your child aca

#### Item-total Statistics

	Scale Mean If Item Deleted	Scale Variance if Item Deleted	Corrected Item- Total Correlation	Alpha if Item Deleted
Q4	4.8844	1.2947	.2703	.5428
Q5	4.7688	1.4715	.4306	.3831
Q9	5.3819	.8231	.4102	.3352

#### Reliability Coefficients

N of Cases = 199.0 N of Items = 3

Alpha = .5306

## Reliability

\*\*\*\*\* Method 1 (space saver) will be used for this analysis \*\*\*\*\*

— R E L I A B I L I T Y   A N A L Y S I S   -   S C A L E   ( A L P H A )

- |    |     |  |
|----|-----|--|
| 1. | Q3  | The CSK programme organizes enrichment a |
| 2. | Q8  | Do you receive circulars describing and  |
| 3. | Q12 | Have you been asked to pay additional    |

### Item-total Statistics

	Scale Mean If Item Deleted	Scale Variance if Item Deleted	Corrected Item- Total Correlation	Alpha if Item Deleted
Q3	2.7817	.8858	.3343	.3158
Q8	3.7056	.6578	.3660	.2624
Q12	4.2538	1.2516	.2348	.4869

### Reliability Coefficients

N of Cases =     197.0

N of Items = 3

Alpha =     .4788

## Reliability

\*\*\*\*\* Method 1 (space saver) will be used for this analysis \*\*\*\*\*

—  
R E L I A B I L I T Y   A N A L Y S I S   -   S C A L E   ( A L P H A )

- |    |     |  |
|----|-----|--|
| 1. | Q10 | Have you taken personal initiative regar |
| 2. | Q2  | Does the CSK programme encourage parenta |

### Item-total Statistics

	Scale Mean If Item Deleted	Scale Variance if Item Deleted	Corrected Item- Total Correlation	Alpha if Item Deleted
Q10	1.8929	.5064	.2482	.
Q2	1.3418	.4928	.2482	.

### Reliability Coefficients

N of Cases =     196.0

N of Items = 2

Alpha =     .3977



## Reliability

\*\*\*\*\* Method 1 (space saver) will be used for this analysis \*\*\*\*\*

—

### R E L I A B I L I T Y   A N A L Y S I S   -   S C A L E   ( A L P H A )

- |    |     |  |
|----|-----|--|
| 1. | Q1  | In general I am satisfied with the CSK c |
| 2. | Q6  | Does your child express satisfaction wit |
| 3. | Q7R |  |

#### Item-total Statistics

	Scale Mean If Item Deleted	Scale Variance if Item Deleted	Corrected Item- Total Correlation	Alpha if Item Deleted
Q1	4.3719	.9923	.3100	.0465
Q6	4.5126	.9279	.1554	.1737
Q7R	5.6482	.4514	.0896	.5294

#### Reliability Coefficients

N of Cases =     199.0

N of Items = 3

Alpha =     .2580

## General Linear Model

### Between-Subjects Factors

		Value Label	N
gender	1	male	24
	2	female	127

### Descriptive Statistics

	gender	Mean	Std. Deviation	N
Inclusion in centre activities	male	-.0606288	.86230905	24
	female	.0119788	1.02014364	127
	Total	.0004385	.99443789	151
Parents' familiarity	male	-.0630833	1.07153400	24
	female	.0370734	.99451349	127
	Total	.0211545	1.00409806	151
Information	male	-.1775134	.62715984	24
	female	.0526132	1.05682235	127
	Total	.0160368	1.00280149	151

### Multivariate Tests(b)

Effect		Value	F	Hypothesis df	Error df	Sig.
Intercept	Pillai's Trace	.003	.124(a)	3.000	147.000	.946
	Wilks' Lambda	.997	.124(a)	3.000	147.000	.946
	Hotelling's Trace	.003	.124(a)	3.000	147.000	.946
	Roy's Largest Root	.003	.124(a)	3.000	147.000	.946
SEX	Pillai's Trace	.009	.453(a)	3.000	147.000	.715
	Wilks' Lambda	.991	.453(a)	3.000	147.000	.715
	Hotelling's Trace	.009	.453(a)	3.000	147.000	.715
	Roy's Largest Root	.009	.453(a)	3.000	147.000	.715

a Exact statistic

b Design: Intercept+SEX

## ests of Between-Subjects Effects

Source	Dependent Variable	Type III Sum of Squares	df	Mean Square	F	Sig
Corrected Model	Inclusion in centre activities	.106(a)	1	.106	.107	.744
	Parents' familiarity	.202(b)	1	.202	.200	.656
	Information	1.069(c)	1	1.069	1.063	.304
Intercept	Inclusion in centre activities	.048	1	.048	.048	.827
	Parents' familiarity	.014	1	.014	.013	.908
	Information	.315	1	.315	.313	.577
SEX	Inclusion in centre activities	.106	1	.106	.107	.744
	Parents' familiarity	.202	1	.202	.200	.656
	Information	1.069	1	1.069	1.063	.304
Error	Inclusion in centre activities	148.230	149	.995		
	Parents' familiarity	151.029	149	1.014		
	Information	149.773	149	1.005		
Total	Inclusion in centre activities	148.336	151			
	Parents' familiarity	151.300	151			
	Information	150.880	151			
Corrected Total	Inclusion in centre activities	148.336	150			
	Parents' familiarity	151.232	150			
	Information	150.842	150			

a. R Squared = .001 (Adjusted R Squared = -.006)

b. R Squared = .001 (Adjusted R Squared = -.005)

c. R Squared = .007 (Adjusted R Squared = .000)

## Crosstabs

In general I am satisfied with the CSK clubs my children participate in \* gender

### Crosstab

% within gender

		gender		
		male	female	Total
In general I am satisfied with the CSK clubs my children participate in	0	86.1%	91.1%	90.2%
	1	13.9%	8.9%	9.8%
Total		100.0%	100.0%	100.0%

## Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	.839(b)	1	.360		
Continuity Correction(a)	.366	1	.545		
Likelihood Ratio	.773	1	.379		
Fisher's Exact Test				.358	.262
Linear-by-Linear Association	.835	1	.361		
N of Valid Cases	194				

a. Computed only for a 2x2 table

b. 1 cells (25.0%) have expected count less than 5. The minimum expected count is 3.53.

## Does your child express satisfaction with his studies in the club \* gender

### Crosstab

#### % within gender

		gender		Total
		male	female	
Does your child express satisfaction with his studies in the club	0	72.2%	78.5%	77.3%
	1	27.8%	21.5%	22.7%
Total		100.0%	100.0%	100.0%

## Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	.655(b)	1	.418		
Continuity Correction(a)	.347	1	.556		
Likelihood Ratio	.631	1	.427		
Fisher's Exact Test				.508	.273
Linear-by-Linear Association	.652	1	.420		
N of Valid Cases	194				

a. Computed only for a 2x2 table

b. 0 cells (.0%) have expected count less than 5. The minimum expected count is 8.16.

## Have you shown involvement in choosing the clubs for your children \* gender

### Crosstab

#### % within gender

		gender		Total
		male	female	
Have you shown involvement in choosing the clubs for your children	0	65.7%	62.2%	62.8%
	1	34.3%	37.8%	37.2%
Total		100.0%	100.0%	100.0%

### Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	.153(b)	1	.696		
Continuity Correction(a)	.039	1	.843		
Likelihood Ratio	.154	1	.694		
Fisher's Exact Test				.847	..426
Linear-by-Linear Association	.152	1	.697		
N of Valid Cases	191				

a. Computed only for a 2x2 table

b. 0 cells (.0%) have expected count less than 5. The minimum expected count is 13.01.

## Does the CSK programme encourage parental involvement \* gender

### Crosstab

#### % within gender

		gender		Total
		male	female	
Does the CSK programme encourage parental involvement	0	25.0%	19.6%	20.6%
	1	75.0%	80.4%	79.4%
Total		100.0%	100.0%	100.0%

### Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	.518(b)	1	.472		
Continuity Correction(a)	.242	1	.623		
Likelihood Ratio	.500	1	.480		
Fisher's Exact Test				.496	..304
Linear-by-Linear Association	.516	1	.473		
N of Valid Cases	194				

a Computed only for a 2x2 table

b 0 cells (.0%) have expected count less than 5. The minimum expected count is 7.42.

### Have you taken personal initiative regarding the CSK framework \* gender

#### Crosstab

#### % within gender

		gender		Total
		male	female	
Have you taken personal initiative regarding the CSK framework	0	22.9%	11.6%	13.7%
	1	77.1%	88.4%	86.3%
Total		100.0%	100.0%	100.0%

### Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	3.056(b)	1	.080		
Continuity Correction(a)	2.178	1	.140		
Likelihood Ratio	2.730	1	.098		
Fisher's Exact Test				.101	..075
Linear-by-Linear Association	3.040	1	.081		
N of Valid Cases	190				

a Computed only for a 2x2 table

b 1 cells (25.0%) have expected count less than 5. The minimum expected count is 4.79.

## General Linear Model

### Between-Subjects Factors

		Value Label	N
age	1	<40	103
	2	41+	53

### Descriptive Statistics

	age	Mean	Std. Deviation	N
Inclusion in centre activities	<40	.0234159	1.00173708	103
	41+	-.0455064	1.00459615	53
	Total	.0000000	1.00000000	156
Parents' familiarity	<40	-.0057802	1.00943555	103
	41+	.0112331	.99088089	53
	Total	.0000000	1.00000000	156
Information	<40	.0348743	1.06427035	103
	41+	-.0677745	.86712166	53
	Total	.0000000	1.00000000	156

### Multivariate Tests(b)

Effect		Value	F	Hypothesis df	Error df	Sig.
Intercept	Pillai's Trace	.000	.018(a)	3.000	152.000	.997
	Wilks' Lambda	1.000	.018(a)	3.000	152.000	.997
	Hotelling's Trace	.000	.018(a)	3.000	152.000	.997
	Roy's Largest Root	.000	.018(a)	3.000	152.000	.997
AGE1	Pillai's Trace	.004	.179(a)	3.000	152.000	.911
	Wilks' Lambda	.996	.179(a)	3.000	152.000	.911
	Hotelling's Trace	.004	.179(a)	3.000	152.000	.911
	Roy's Largest Root	.004	.179(a)	3.000	152.000	.911

a Exact statistic

b Design: Intercept+AGE1



## Tests of Between-Subjects Effects

Source	Dependent Variable	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	Inclusion in centre activities	.166(a)	1	.166	.165	.685
	Parents' familiarity	.010(b)	1	.010	.010	.920
	Information	.369(c)	1	.369	.367	.545
Intercept	Inclusion in centre activities	.017	1	.017	.017	.896
	Parents' familiarity	.001	1	.001	.001	.974
	Information	.038	1	.038	.038	.846
AGE1	Inclusion in centre activities	.166	1	.166	.165	.685
	Parents' familiarity	.010	1	.010	.010	.920
	Information	.369	1	.369	.367	.545
Error	Inclusion in centre activities	154.834	154	1.005		
	Parents' familiarity	154.990	154	1.006		
	Information	154.631	154	1.004		
Total	Inclusion in centre activities	155.000	156			
	Parents' familiarity	155.000	156			
	Information	155.000	156			
Corrected Total	Inclusion in centre activities	155.000	155			
	Parents' familiarity	155.000	155			
	Information	155.000	155			

a. R Squared = .001 (Adjusted R Squared = -.005)

b. R Squared = .000 (Adjusted R Squared = -.006)

c. R Squared = .002 (Adjusted R Squared = -.004)

## Crosstabs

In general I am satisfied with the CSK clubs my children participate in \* age

### Crosstab

% within age

		age		
		<40	41+	Total
In general I am satisfied with the CSK clubs my children participate in	0	90.4%	87.9%	89.6%
	1	9.6%	12.1%	10.4%
Total		100.0%	100.0%	100.0%

## Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	.294(b)	1	.588		
Continuity Correction(a)	.088	1	.767		
Likelihood Ratio	.288	1	.592		
Fisher's Exact Test				.627	.376
Linear-by-Linear Association	.293	1	.589		
N of Valid Cases	201				

a Computed only for a 2x2 table

b 0 cells (.0%) have expected count less than 5. The minimum expected count is 6.90.

## Does your child express satisfaction with his studies in the club \* age

### Crosstab

#### % within age

		age		Total
		<40	41+	
Does your child express satisfaction with his studies in the club	0	79.3%	74.2%	77.6%
	1	20.7%	25.8%	22.4%
Total		100.0%	100.0%	100.0%

## Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	.642(b)	1	.423		
Continuity Correction(a)	.386	1	.535		
Likelihood Ratio	.632	1	.427		
Fisher's Exact Test				.472	.265
Linear-by-Linear Association	.639	1	.424		
N of Valid Cases	201				

a Computed only for a 2x2 table

b 0 cells (.0%) have expected count less than 5. The minimum expected count is 14.78.

## Have you shown involvement in choosing the clubs for your children \* age

### Crosstab

% within age

		age		Total
		<40	41+	
Have you shown involvement in choosing the clubs for your children	0	65.4%	58.5%	63.1%
	1	34.6%	41.5%	36.9%
Total		100.0%	100.0%	100.0%

### Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	.907(b)	1	.341		
Continuity Correction(a)	.633	1	.426		
Likelihood Ratio	.900	1	.343		
Fisher's Exact Test				.351	.213
Linear-by-Linear Association	.902	1	.342		
N of Valid Cases	198				

a Computed only for a 2x2 table

b 0 cells (.0%) have expected count less than 5. The minimum expected count is 23.96.

## Does the CSK programme encourage parental involvement \* age

### Crosstab

% within age

		age		Total
		<40	41+	
Does the CSK programme encourage parental involvement	0	24.4%	13.6%	20.9%
	1	75.6%	86.4%	79.1%
Total		100.0%	100.0%	100.0%

## Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	3.133(b)	1	.077		
Continuity Correction(a)	2.513	1	.113		
Likelihood Ratio	3.316	1	.069		
Fisher's Exact Test				.096	.054
Linear-by-Linear Association	3.117	1	.077		
N of Valid Cases	201				

a Computed only for a 2x2 table

b 0 cells (.0%) have expected count less than 5. The minimum expected count is 13.79.

## Have you taken personal initiative regarding the CSK framework \* age

### Crosstab

% within age

		age		Total
		<40	41+	
Have you taken personal initiative regarding the CSK framework	0	13.0%	13.8%	13.3%
	1	87.0%	86.2%	86.7%
Total		100.0%	100.0%	100.0%

## Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	.029(b)	1	.866		
Continuity Correction(a)	.000	1	1.000		
Likelihood Ratio	.028	1	.866		
Fisher's Exact Test				1.000	.514
Linear-by-Linear Association	.028	1	.866		
N of Valid Cases	196				

a Computed only for a 2x2 table

b 0 cells (.0%) have expected count less than 5. The minimum expected count is 8.62.

## General Linear Model

### Between-Subjects Factors

		Value Label	N
origin	0	immigrants	48
	1	Israel	108

### Descriptive Statistics

	Origin	Mean	Std. Deviation	N
Inclusion in centre activities	immigrants	.1901313	1.05190980	48
	Israel	-.0845028	.96908974	108
	Total	.0000000	1.00000000	156
Parents' familiarity	immigrants	-.1319358	1.12359947	48
	Israel	.0586381	.93956020	108
	Total	.0000000	1.00000000	156
Information	immigrants	-.0313699	1.05296841	48
	Israel	.0139422	.98027688	108
	Total	.0000000	1.00000000	156

### Multivariate Tests(b)

Effect		Value	F	Hypothesis df	Error df	Sig.
Intercept	Pillai's Trace	.004	.187(a)	3.000	152.000	.905
	Wilks' Lambda	.996	.187(a)	3.000	152.000	.905
	Hotelling's Trace	.004	.187(a)	3.000	152.000	.905
	Roy's Largest Root	.004	.187(a)	3.000	152.000	.905
ORIGIN	Pillai's Trace	.024	1.267(a)	3.000	152.000	.288
	Wilks' Lambda	.976	1.267(a)	3.000	152.000	.288
	Hotelling's Trace	.025	1.267(a)	3.000	152.000	.288
	Roy's Largest Root	.025	1.267(a)	3.000	152.000	.288

a Exact statistic

b Design: Intercept+ORIGIN

## Tests of Between-Subjects Effects

Source	Dependent Variable	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	Inclusion in centre activities	2.506(a)	1	2.506	2.531	.114
	Parents' familiarity	1.207(b)	1	1.207	1.209	.273
	Information	.068(c)	1	.068	.068	.795
Intercept	Inclusion in centre activities	.371	1	.371	.374	.542
	Parents' familiarity	.179	1	.179	.179	.673
	Information	.010	1	.010	.010	.920
ORIGIN	Inclusion in centre activities	2.506	1	2.506	2.531	.114
	Parents' familiarity	1.207	1	1.207	1.209	.273
	Information	.068	1	.068	.068	.795
Error	Inclusion in centre activities	152.494	154	.990		
	Parents' familiarity	153.793	154	.999		
	Information	154.932	154	1.006		
Total	Inclusion in centre activities	155.000	156			
	Parents' familiarity	155.000	156			
	Information	155.000	156			
Corrected Total	Inclusion in centre activities	155.000	155			
	Parents' familiarity	155.000	155			
	Information	155.000	155			

a R Squared = .016 (Adjusted R Squared = .010)

b R Squared = .008 (Adjusted R Squared = .001)

c R Squared = .000 (Adjusted R Squared = -.006)

## Crosstabs

In general I am satisfied with the CSK clubs my children participate in \* origin

## Crosstab

% within origin

		origin		Total
		immigrants	Israel	
In general I am satisfied with the CSK clubs my children participate in	0	86.9%	90.8%	89.6%
	1	13.1%	9.2%	10.4%
Total		100.0%	100.0%	100.0%

### Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	.693(b)	1	.405		
Continuity Correction(a)	.338	1	.561		
Likelihood Ratio	.668	1	.414		
Fisher's Exact Test				.454	..275
Linear-by-Linear Association	.690	1	.406		
N of Valid Cases	202				

a Computed only for a 2x2 table

b 0 cells (.0%) have expected count less than 5. The minimum expected count is 6.34.

### Does your child express satisfaction with his studies in the club \* origin

#### Crosstab

#### % within origin

		origin		Total
		immigrants	Israel	
Does your child express satisfaction with his studies in the club	0	65.6%	82.3%	77.2%
	1	34.4%	17.7%	22.8%
Total		100.0%	100.0%	100.0%

### Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	6.749(b)	1	.009		
Continuity Correction(a)	5.833	1	.016		
Likelihood Ratio	6.430	1	.011		
Fisher's Exact Test				.017	..009
Linear-by-Linear Association	6.715	1	.010		
N of Valid Cases	202				

a Computed only for a 2x2 table

b 0 cells (.0%) have expected count less than 5. The minimum expected count is 13.89.



## Have you shown involvement in choosing the clubs for your children \* origin

### Crosstab

% within origin

		origin		Total
		immigrants	Israel	
Have you shown involvement in choosing the clubs for your children	0	65.0%	62.6%	63.3%
	1	35.0%	37.4%	36.7%
Total		100.0%	100.0%	100.0%

### Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	.105(b)	1	.746		
Continuity Correction(a)	.027	1	.870		
Likelihood Ratio	.105	1	.746		
Fisher's Exact Test				.873	.437
Linear-by-Linear Association	.104	1	.747		
N of Valid Cases	199				

a Computed only for a 2x2 table

b 0 cells (.0%) have expected count less than 5. The minimum expected count is 22.01.

## Does the CSK programme encourage parental involvement \* origin

### Crosstab

% within origin

		origin		Total
		immigrants	Israel	
Does the CSK programme encourage parental involvement	0	18.0%	22.0%	20.8%
	1	82.0%	78.0%	79.2%
Total		100.0%	100.0%	100.0%

## Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	.404(b)	1	.525		
Continuity Correction(a)	.200	1	.655		
Likelihood Ratio	.412	1	.521		
Fisher's Exact Test				.576	..332
Linear-by-Linear Association	.402	1	.526		
N of Valid Cases	202				

a Computed only for a 2x2 table

b 0 cells (.0%) have expected count less than 5. The minimum expected count is 12.68.

## Have you taken personal initiative regarding the CSK framework \* origin

### Crosstab

% within origin

		origin		Total
		immigrants	Israel	
Have you taken personal initiative regarding the CSK framework	0	17.9%	11.4%	13.3%
	1	82.1%	88.6%	86.7%
Total		100.0%	100.0%	100.0%

## Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	1.437(b)	1	.231		
Continuity Correction(a)	.932	1	.334		
Likelihood Ratio	1.369	1	.242		
Fisher's Exact Test				.248	..167
Linear-by-Linear Association	1.429	1	.232		
N of Valid Cases	196				

a Computed only for a 2x2 table

b 0 cells (.0%) have expected count less than 5. The minimum expected count is 7.43.

## General Linear Model

### Between-Subjects Factors

		Value Label	N
education	1	elementary and high school	62
	2	higher education	93

### Descriptive Statistics

	education	Mean	Std. Deviation	N
Inclusion in center activities	elementary and high school	.1194659	1.00099228	62
	higher education	-.0724261	1.00030207	93
	Total	.0043307	1.00177280	155
Parents' familiarity	elementary and high school	.2724194	.79640772	62
	higher education	-.1807585	1.08679671	93
	Total	.0005126	1.00322093	155
Information	elementary and high school	.1799776	.96150213	62
	higher education	-.1001722	1.00146449	93
	Total	.0118877	.99212134	155

### Multivariate Tests(b)

Effect		Value	F	Hypothesis df	Error df	Sig.
Intercept	Pillai's Trace	.004	.225(a)	3.000	151.000	.879
	Wilks' Lambda	.996	.225(a)	3.000	151.000	.879
	Hotelling's Trace	.004	.225(a)	3.000	151.000	.879
	Roy's Largest Root	.004	.225(a)	3.000	151.000	.879
EDUCAT	Pillai's Trace	.078	4.241(a)	3.000	151.000	.007
	Wilks' Lambda	.922	4.241(a)	3.000	151.000	.007
	Hotelling's Trace	.084	4.241(a)	3.000	151.000	.007
	Roy's Largest Root	.084	4.241(a)	3.000	151.000	.007

a Exact statistic

b Design: Intercept+EDUCA

## Tests of Between-Subjects Effects

Source	Dependent Variable	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	Inclusion in centre activities	1.370(a)	1	1.370	1.368	.244
	Parents' familiarity	7.640(b)	1	7.640	7.933	.005
	Information	2.920(c)	1	2.920	3.005	.085
Intercept	Inclusion in centre activities	.082	1	.082	.082	.775
	Parents' familiarity	.313	1	.313	.325	.570
	Information	.237	1	.237	.244	.622
EDUCAT	Inclusion in centre activities	1.370	1	1.370	1.368	.244
	Parents' familiarity	7.640	1	7.640	7.933	.005
	Information	2.920	1	2.920	3.005	.085
Error	Inclusion in centre activities	153.177	153	1.001		
	Parents' familiarity	147.354	153	.963		
	Information	148.663	153	.972		
Total	Inclusion in centre activities	154.549	155			
	Parents' familiarity	154.994	155			
	Information	151.605	155			
Corrected Total	Inclusion in centre activities	154.547	154			
	Parents' familiarity	154.994	154			
	Information	151.583	154			

a R Squared = .009 (Adjusted R Squared = .002)

b R Squared = .049 (Adjusted R Squared = .043)

c R Squared = .019 (Adjusted R Squared = .013)

## Crosstabs

**In general I am satisfied with the CSK clubs my children participate in \* education**

## Crosstab

**% within education**

		education		Total
		elementary and high school	higher education	
In general I am satisfied with the CSK clubs my children participate in	0	92.9%	87.1%	89.5%
	1	7.1%	12.9%	10.5%
Total		100.0%	100.0%	100.0%

### Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	1.737(b)	1	.188		
Continuity Correction(a)	1.176	1	.278		
Likelihood Ratio	1.806	1	.179		
Fisher's Exact Test				.244	.139
Linear-by-Linear Association	1.728	1	.189		
N of Valid Cases	200				

a Computed only for a 2x2 table

b 0 cells (.0%) have expected count less than 5. The minimum expected count is 8.82.

### Does your child express satisfaction with his studies in the club \* education

#### Crosstab

#### % within education

		education		Total
		elementary and high school	higher education	
Does your child express satisfaction with his studies in the club	0	77.4%	77.6%	77.5%
	1	22.6%	22.4%	22.5%
Total		100.0%	100.0%	100.0%

### Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	.001(b)	1	.973		
Continuity Correction(a)	.000	1	1.000		
Likelihood Ratio	.001	1	.973		
Fisher's Exact Test				1.000	.553
Linear-by-Linear Association	.001	1	.973		
N of Valid Cases	200				

a Computed only for a 2x2 table

b 0 cells (.0%) have expected count less than 5. The minimum expected count is 18.90.

## Have you shown involvement in choosing the clubs for your children \* education

### Crosstab

% within education

		education		Total
		elementary and high school	higher education	
Have you shown involvement in choosing the clubs for your children	0	67.9%	59.3%	62.9%
	1	32.1%	40.7%	37.1%
Total		100.0%	100.0%	100.0%

### Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	1.515(b)	1	.218		
Continuity Correction(a)	1.170	1	.279		
Likelihood Ratio	1.525	1	.217		
Fisher's Exact Test				.236	..140
Linear-by-Linear Association	1.508	1	.219		
N of Valid Cases	197				

a Computed only for a 2x2 table

b 0 cells (.0%) have expected count less than 5. The minimum expected count is 31.13.

## Does the CSK programme encourage parental involvement \* education

### Crosstab

% within education

		education		Total
		elementary and high school	higher education	
Does the CSK programme encourage parental involvement	0	29.8%	14.7%	21.0%
	1	70.2%	85.3%	79.0%
Total		100.0%	100.0%	100.0%

### Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	6.702(b)	1	.010		
Continuity Correction(a)	5.822	1	.016		
Likelihood Ratio	6.629	1	.010		
Fisher's Exact Test				.013	..008
Linear-by-Linear Association	6.668	1	.010		
N of Valid Cases	200				

a Computed only for a 2x2 table

b 0 cells (.0%) have expected count less than 5. The minimum expected count is 17.64.

### Have you taken personal initiative regarding the CSK framework \* education

#### Crosstab

#### % within education

		education		Total
		elementary and high school	higher education	
Have you taken personal initiative regarding the CSK framework	0	16.7%	10.8%	13.3%
	1	83.3%	89.2%	86.7%
Total		100.0%	100.0%	100.0%

### Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	1.419(b)	1	.234		
Continuity Correction(a)	.957	1	.328		
Likelihood Ratio	1.405	1	.236		
Fisher's Exact Test				.289	..164
Linear-by-Linear Association	1.412	1	.235		
N of Valid Cases	195				

a Computed only for a 2x2 table

b 0 cells (.0%) have expected count less than 5. The minimum expected count is 11.20.



## General Linear Model

### Between-Subjects Factors

		Value Label	N
LOCAT	1	firstborn	64
	2	young child	40
	3	middle	48

### Descriptive Statistics

	LOCAT	Mean	Std. Deviation	N
Inclusion in centre tivities	firstborn	.0463981	1.07812120	64
	young child	-.0173154	.91001049	40
	middle	-.0414905	.97809782	48
	Total	.0018771	.99907244	152
Parents' familiarity	firstborn	-.1281371	1.00457339	64
	young child	.1162759	.94029899	40
	middle	.0076955	1.05207070	48
	Total	-.0209234	1.00201749	152
Information	firstborn	-.0209285	1.04766428	64
	young child	-.0871545	.87260923	40
	middle	.0902729	1.07262683	48
	Total	-.0032402	1.00870883	152

### Multivariate Tests(c)

Effect		Value	F	Hypothesis df	Error df	Sig.
Intercept	Pillai's Trace	.000	.003(a)	3.000	147.000	1.000
	Wilks' Lambda	1.000	.003(a)	3.000	147.000	1.000
	Hotelling's Trace	.000	.003(a)	3.000	147.000	1.000
	Roy's Largest Root	.000	.003(a)	3.000	147.000	1.000
LOCAT	Pillai's Trace	.016	.405	6.000	296.000	.875
	Wilks' Lambda	.984	.403(a)	6.000	294.000	.877
	Hotelling's Trace	.016	.400	6.000	292.000	.879
	Roy's Largest Root	.011	.561(b)	3.000	148.000	.642

a Exact statistic

b The statistic is an upper bound on F that yields a lower bound on the significance level.

c Design: Intercept+LOCAT

## Tests of Between-Subjects Effects

Source	Dependent Variable	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	Inclusion in center activities	.232(a)	2	.116	..115	.892
	Parents' familiarity	1.528(b)	2	.764	..758	.470
	Information	.721(c)	2	.361	..351	.704
Intercept	Inclusion in center activities	.003	1	.003	.002	..960
	Parents' familiarity	.000	1	.000	.000	..987
	Information	.005	1	.005	.005	..944
LOCAT	Inclusion in center activities	.232	2	.116	.115	.892
	Parents' familiarity	1.528	2	.764	.758	.470
	Information	.721	2	.361	.351	..704
Error	Inclusion in center activities	150.488	149	1.010		
	Parents' familiarity	150.082	149	1.007		
	Information	152.920	149	1.026		
Total	Inclusion in center activities	150.721	152			
	Parents' familiarity	151.676	152			
	Information	153.643	152			
Corrected Total	Inclusion in center activities	150.720	151			
	Parents' familiarity	151.610	151			
	Information	153.642	151			

a R Squared = .002 (Adjusted R Squared = -.012)

b R Squared = .010 (Adjusted R Squared = -.003)

c R Squared = .005 (Adjusted R Squared = -.009)

## Post Hoc Tests

### LOCAT

#### Multiple Comparisons

##### Scheffe

Dependent Variable	(I) LOCAT	(J) LOCAT	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Inclusion in center activities	firstborn	young child	.0637135	.20256047	..952	-.4371296	
		middle	.0878886	.19189180	..900	-.3865755	
	young child	firstborn	-.0637135	.20256047	..952	-.5645566	

		middle	.0241751	.21515365	..994	-.5078054	
	middle	firstborn	-.0878886	.19189180	..900	-.5623528	
		young child	-.0241751	.21515365	..994	-.5561556	
Parents' familiarity	firstborn	young child	-.2444130	.20228693	..484	-.7445798	
		middle	-.1358326	.19163266	..778	-.6096560	
	young child	firstborn	.2444130	.20228693	..484	-.2557537	
		middle	.1085804	.21486311	..880	-.4226817	
	middle	firstborn	.1358326	.19163266	..778	-.3379908	
		young child	-.1085804	.21486311	..880	-.6398425	
Information	firstborn	young child	.0662260	.20419064	..949	-.4386478	
		middle	-.1112014	.19343610	..848	-.5894839	
	young child	firstborn	-.0662260	.20419064	..949	-.5710998	
		middle	-.1774274	.21688517	..716	-.7136892	
	middle	firstborn	.1112014	.19343610	..848	-.3670812	
		young child	.1774274	.21688517	..716	-.3588344	

Based on observed means.

## Homogeneous Subsets

### Inclusion in center activities

#### Scheffe

LOCAT	N	Subset 1
middle	48	-.0414905
young child	40	-.0173154
firstborn	64	.0463981
Sig.		.911

Means for groups in homogeneous subsets are displayed. Based on Type III Sum of Squares The error term is Mean Square (Error) = 1.010.

a Uses Harmonic Mean Sample Size = 48.814.

b Alpha = .05.

### Parents' familiarity

#### Scheffe

LOCAT	N	Subset 1
firstborn	64	-.1281371
middle	48	.0076955
young child	40	.1162759
Sig.		.487

Means for groups in homogeneous subsets are displayed. Based on Type III Sum of Squares the error term is Mean Square (Error) = 1.007.

a Uses Harmonic Mean Sample Size = 48.814.

b Alpha = .05.

## Information

### Scheffe

LOCAT	N	Subset
		1
young child	40	-.0871545
firstborn	64	-.0209285
middle	48	.0902729
Sig.		.688

Means for groups in homogeneous subsets are displayed. Based on Type III Sum of Squares the error term is Mean Square (Error) = 1.026.

a Uses Harmonic Mean Sample Size = 48.814.

b Alpha = .05.

## Crosstabs

**In general I am satisfied with the CSK clubs my children participate in \* LOCAT**

### Crosstab

% within LOCAT

		LOCAT			Total
		firstborn	young child	middle	
In general I am satisfied with the CSK clubs my children participate in	0	89.3%	90.9%	88.1%	89.4%
	1	10.7%	9.1%	11.9%	10.6%
Total		100.0%	100.0%	100.0%	100.0%

## Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	.233(a)	2	.890
Likelihood Ratio	.236	2	.889
Linear-by-Linear Association	.032	1	.858
N of Valid Cases	198		

a 0 cells (.0%) have expected count less than 5. The minimum expected count is 5.83.

## Does your child express satisfaction with his studies in the club \* LOCAT

### Crosstab

#### % within LOCAT

		LOCAT			Total
		firstborn	young child	middle	
Does your child express satisfaction with his studies in the club	0	77.4%	74.5%	78.0%	76.8%
	1	22.6%	25.5%	22.0%	23.2%
Total		100.0%	100.0%	100.0%	100.0%

### Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	.218(a)	2	.897
Likelihood Ratio	.215	2	.898
Linear-by-Linear Association	.001	1	.969
N of Valid Cases	198		

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 12.78.

## Have you shown involvement in choosing the clubs for your children \* LOCAT

### Crosstab

#### % within LOCAT

		LOCAT			Total
		firstborn	young child	middle	
Have you shown involvement in choosing the clubs for your children	0	66.3%	63.6%	57.9%	63.1%
	1	33.7%	36.4%	42.1%	36.9%
Total		100.0%	100.0%	100.0%	100.0%

### Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	1.027(a)	2	.598
Likelihood Ratio	1.020	2	.600
Linear-by-Linear Association	.981	1	.322
N of Valid Cases	195		

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 20.31.

## Does the CSK programme encourage parental involvement \* LOCAT

### Crosstab

#### % within LOCAT

		LOCAT			Total
		firstborn	young child	middle	
Does the CSK programme encourage parental involvement	0	27.4%	12.7%	16.9%	20.2%
	1	72.6%	87.3%	83.1%	79.8%
Total		100.0%	100.0%	100.0%	100.0%

### Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	4.979(a)	2	.083
Likelihood Ratio	5.018	2	.081
Linear-by-Linear Association	2.789	1	.095
N of Valid Cases	198		

a 0 cells (.0%) have expected count less than 5. The minimum expected count is 11.11.

## Have you taken personal initiative regarding the CSK framework \* LOCAT

### Crosstab

#### % within LOCAT

		LOCAT			Total
		firstborn	young child	middle	
Have you taken personal initiative regarding the CSK framework	0	13.4%	15.4%	12.1%	13.5%
	1	86.6%	84.6%	87.9%	86.5%
Total		100.0%	100.0%	100.0%	100.0%

### Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	.259(a)	2	.878
Likelihood Ratio	.258	2	.879
Linear-by-Linear Association	.035	1	.852
N of Valid Cases	192		

a 0 cells (.0%) have expected count less than 5. The minimum expected count is 7.04.







Appendix 17

CENTER	GENDER	GRADE	TYPE	CLUB	Q9	Q10	Q11	Q12	Q13	Q14	Q15	Q16	Q17	Q18	Q19	Q20	Q21
159.00	4.00	1.00	1.00	1.00	6.00	4.00	4.00	3.00	3.00	4.00	4.00	4.00	2.00	3.00	4.00	4.00	4.00
160.00	4.00	1.00	2.00	1.00	6.00	2.00	3.00	4.00	1.00	4.00	4.00	3.00	4.00	1.00	2.00	2.00	4.00
161.00	4.00	1.00	1.00	1.00	6.00	4.00	4.00	2.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
162.00	4.00	1.00	1.00	1.00	6.00	3.00	4.00	3.00	4.00	2.00	4.00	4.00	4.00	2.00	1.00	3.00	4.00
163.00	4.00	1.00	2.00	1.00	6.00	4.00	3.00	3.00	1.00	4.00	4.00	4.00	4.00	4.00	3.00	4.00	4.00
164.00	4.00	1.00	1.00	1.00	6.00	4.00	4.00	2.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
165.00	4.00	2.00	1.00	2.00	10.00	3.00	4.00	1.00	3.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
166.00	4.00	2.00	1.00	2.00	10.00	4.00	4.00	2.00	3.00	4.00	4.00	4.00	3.00	3.00	3.00	4.00	4.00
167.00	4.00	2.00	1.00	2.00	10.00	4.00	4.00	2.00	4.00	4.00	4.00	4.00	4.00	1.00	4.00	4.00	4.00
168.00	4.00	2.00	2.00	2.00	10.00	4.00	4.00	2.00	4.00	4.00	4.00	4.00	2.00	4.00	4.00	4.00	4.00
169.00	4.00	2.00	1.00	2.00	10.00	4.00	4.00	2.00	3.00	4.00	4.00	4.00	1.00	4.00	3.00	4.00	3.00
170.00	4.00	2.00	1.00	2.00	10.00	4.00	4.00	1.00	4.00	4.00	4.00	4.00	2.00	4.00	4.00	4.00	4.00
171.00	4.00	2.00	2.00	2.00	10.00	4.00	3.00	4.00	2.00	4.00	3.00	4.00	1.00	3.00	1.00	2.00	3.00
172.00	4.00	2.00	1.00	2.00	10.00	4.00	4.00	3.00	3.00	4.00	3.00	4.00	3.00	4.00	3.00	4.00	3.00
173.00	4.00	2.00	1.00	2.00	10.00	4.00	3.00	4.00	2.00	3.00	3.00	4.00	1.00	4.00	3.00	4.00	3.00
174.00	4.00	2.00	2.00	2.00	10.00	4.00	4.00	3.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
175.00	4.00	2.00	1.00	2.00	11.00	4.00	3.00	4.00	2.00	3.00	4.00	4.00	3.00	2.00	4.00	4.00	4.00
176.00	4.00	2.00	1.00	2.00	11.00	4.00	4.00	2.00	2.00	4.00	4.00	4.00	3.00	2.00	4.00	4.00	4.00
177.00	4.00	2.00	1.00	2.00	11.00	3.00	4.00	3.00	1.00	3.00	4.00	4.00	3.00	1.00	2.00	3.00	4.00
178.00	4.00	2.00	2.00	2.00	11.00	4.00	3.00	4.00	3.00	4.00	4.00	3.00	2.00	2.00	3.00	2.00	4.00
179.00	4.00	2.00	1.00	2.00	11.00	4.00	4.00	4.00	2.00	4.00	4.00	4.00	3.00	2.00	3.00	3.00	4.00
180.00	4.00	2.00	1.00	2.00	11.00	4.00	4.00	4.00	2.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
181.00	4.00	2.00	1.00	2.00	11.00	4.00	4.00	1.00	4.00	4.00	4.00	4.00	4.00	3.00	4.00	4.00	4.00
182.00	4.00	2.00	1.00	2.00	11.00	4.00	4.00	1.00	4.00	4.00	4.00	4.00	3.00	1.00	3.00	4.00	4.00
183.00	4.00	2.00	1.00	2.00	11.00	4.00	4.00	3.00	4.00	4.00	4.00	4.00	3.00	3.00	3.00	3.00	4.00
184.00	4.00	2.00	1.00	2.00	11.00	3.00	4.00	4.00	3.00	4.00	4.00	4.00	3.00	4.00	3.00	3.00	4.00
185.00	4.00	2.00	1.00	2.00	12.00	4.00	4.00	3.00	1.00	3.00	4.00	4.00	2.00	2.00	3.00	4.00	4.00
186.00	4.00	2.00	2.00	2.00	12.00	4.00	4.00	2.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
187.00	4.00	2.00	2.00	2.00	12.00	4.00	4.00	3.00	1.00	3.00	4.00	4.00	2.00	2.00	4.00	4.00	4.00
188.00	4.00	2.00	1.00	2.00	12.00	4.00	4.00	4.00	2.00	4.00	4.00	4.00	3.00	2.00	2.00	4.00	4.00
189.00	4.00	1.00	1.00	2.00	12.00	3.00	4.00	2.00	3.00	4.00	4.00	4.00	3.00	2.00	4.00	3.00	4.00
190.00	4.00	2.00	3.00	2.00	12.00	2.00	3.00	4.00	2.00	2.00	3.00	3.00	2.00	1.00	2.00	3.00	2.00
191.00	4.00	2.00	3.00	2.00	12.00	3.00	3.00	4.00	3.00	2.00	3.00	3.00	2.00	1.00	3.00	4.00	3.00
192.00	4.00	2.00	2.00	2.00	12.00	4.00	4.00	2.00	2.00	4.00	4.00	4.00	4.00	1.00	4.00	3.00	4.00
193.00	4.00	2.00	1.00	2.00	12.00	4.00	4.00	4.00	2.00	1.00	4.00	4.00	4.00	1.00	3.00	3.00	4.00
194.00	4.00	2.00	1.00	2.00	12.00	4.00	4.00	2.00	1.00	4.00	4.00	4.00	4.00	1.00	3.00	3.00	4.00
195.00	4.00	2.00	3.00	2.00	12.00	4.00	4.00	2.00	3.00	4.00	4.00	4.00	4.00	4.00	3.00	4.00	4.00
196.00	4.00	2.00	3.00	2.00	12.00	4.00	4.00	2.00	3.00	4.00	4.00	4.00	4.00	4.00	3.00	4.00	4.00
197.00	4.00	2.00	1.00	2.00	12.00	4.00	4.00	2.00	4.00	4.00	4.00	4.00	4.00	4.00	3.00	4.00	4.00
198.00	4.00	1.00	3.00	2.00	12.00	4.00	3.00	4.00	2.00	3.00	4.00	4.00	2.00	4.00	1.00	3.00	2.00
199.00	4.00	1.00	3.00	2.00	12.00	3.00	4.00	4.00	4.00	1.00	4.00	4.00	2.00	1.00	3.00	3.00	4.00
200.00	4.00	2.00	3.00	2.00	12.00	4.00	4.00	3.00	1.00	3.00	4.00	3.00	3.00	1.00	2.00	4.00	4.00
201.00	4.00	2.00	2.00	2.00	12.00	4.00	4.00	3.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
202.00	4.00	2.00	3.00	2.00	12.00	4.00	4.00	3.00	4.00	4.00	4.00	4.00	4.00	1.00	4.00	4.00	4.00
203.00	4.00	2.00	3.00	2.00	12.00	4.00	4.00	2.00	1.00	4.00	4.00	4.00	3.00	4.00	2.00	4.00	3.00
204.00	5.00	1.00	2.00	1.00	13.00	3.00	4.00	4.00	2.00	4.00	4.00	3.00	3.00	4.00	4.00	4.00	3.00
205.00	5.00	1.00	1.00	1.00	1.00	4.00	4.00	3.00	4.00	4.00	4.00	4.00	4.00	3.00	3.00	3.00	4.00
206.00	5.00	2.00	3.00	1.00	1.00	3.00	4.00	3.00	4.00	4.00	4.00	4.00	3.00	3.00	4.00	4.00	4.00
207.00	5.00	1.00	1.00	1.00	1.00	4.00	4.00	4.00	2.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
208.00	5.00	2.00	1.00	1.00	1.00	4.00	4.00	3.00	3.00	4.00	4.00	4.00	4.00	3.00	4.00	4.00	4.00
209.00	5.00	1.00	2.00	1.00	1.00	3.00	4.00	3.00	3.00	4.00	4.00	4.00	3.00	3.00	4.00	4.00	4.00
210.00	5.00	1.00	1.00	1.00	1.00	3.00	4.00	3.00	4.00	4.00	4.00	4.00	3.00	3.00	4.00	4.00	4.00
211.00	5.00	2.00	2.00	1.00	1.00	4.00	4.00	2.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
212.00	5.00	1.00	1.00	1.00	1.00	4.00	4.00	3.00	3.00	4.00	4.00	4.00	4.00	3.00	3.00	3.00	4.00
213.00	5.00	2.00	2.00	1.00	1.00	4.00	4.00	2.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
214.00	5.00	1.00	1.00	1.00	14.00	2.00	4.00	2.00	1.00	3.00	2.00	4.00	1.00	2.00	2.00	4.00	3.00
215.00	5.00	2.00	1.00	1.00	14.00	4.00	4.00	2.00	3.00	4.00	4.00	4.00	4.00	3.00	4.00	4.00	4.00
216.00	5.00	2.00	1.00	1.00	14.00	4.00	4.00	3.00	4.00	4.00	4.00	4.00	4.00	3.00	4.00	4.00	4.00
217.00	5.00	1.00	2.00	1.00	14.00	4.00	3.00	4.00	2.00	3.00	2.00	4.00	3.00	2.00	4.00	3.00	4.00
218.00	5.00	1.00	2.00	1.00	14.00	3.00	3.00	4.00	4.00	4.00	4.00	4.00	3.00	2.00	4.00	4.00	4.00
219.00	5.00	1.00	3.00	1.00	14.00	4.00	4.00	3.00	4.00	4.00	4.00	4.00	3.00	4.00	3.00	4.00	4.00
220.00	5.00	2.00	2.00	1.00	14.00	4.00	2.00	4.00	2.00	3.00	2.00	4.00	3.00	4.00	2.00	4.00	4.00
221.00	5.00	1.00	1.00	1.00	14.00	4.00	4.00	2.00	3.00	4.00	4.00	4.00	3.00	2.00	3.00	4.00	4.00
222.00	5.00	2.00	2.00	1.00	14.00	2.00	3.00	4.00	1.00	4.00	4.00	4.00	4.00	3.00	2.00	3.00	2.00
223.00	5.00	1.00	2.00	1.00	14.00	2.00	3.00	3.00	2.00	3.00	2.00	2.00	1.00	3.00	2.00	4.00	4.00
224.00	5.00	2.00	1.00	1.00	13.00	4.00	3.00	4.00	2.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	3.00
225.00	5.00	1.00	1.00	1.00	13.00	4.00	3.00	4.00	2.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
226.00	5.00	2.00	2.00	1.00	13.00	4.00	3.00	4.00	1.00	4.00	3.00	4.00	4.00	4.00	2.00	4.00	4.00
227.00	5.00	1.00	1.00	1.00	13.00	4.00	4.00	4.00	1.00	3.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
228.00	5.00	1.00	1.00	1.00	13.00	4.00	4.00	3.00	2.00	4.00	4.00	4.00	4.00	3.00	2.00	3.00	4.00
229.00	5.00	1.00	1.00	1.00	13.00	4.00	4.00	3.00	2.00	4.00	4.00	4.00	4.00	3.00	1.00	4.00	4.00
230.00	5.00	2.00	1.00	1.00	13.00	4.00	4.00	3.00	1.00	4.00	4.00	4.00	4.00	4.00	1.00	4.00	4.00
231.00	5.00	2.00</															

Appendix 17 CENTER GENDER GRADE TYPE CLUB Q9 Q10 Q11 Q12 Q13 Q14 Q15 Q16 Q17 Q18 Q19 Q20 Q21																							
238.00	6.00	2.00	2.00	1.00	15.00	4.00	4.00	4.00	4.00	3.00	3.00	4.00	4.00	4.00	4.00	3.00	3.00	4.00	4.00	4.00	4.00	4.00	4.00
239.00	6.00	2.00	2.00	1.00	15.00	3.00	3.00	2.00	2.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	3.00	3.00	4.00	4.00	4.00	4.00
240.00	6.00	2.00	2.00	1.00	15.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	2.00	3.00	3.00	4.00	4.00	4.00	4.00
241.00	6.00	1.00	3.00	1.00	15.00	3.00	4.00	#####	2.00	4.00	3.00	3.00	3.00	2.00	3.00	3.00	4.00	4.00	3.00	4.00	3.00	4.00	4.00
242.00	6.00	1.00	2.00	1.00	15.00	3.00	4.00	3.00	2.00	2.00	2.00	2.00	4.00	4.00	3.00	3.00	3.00	2.00	1.00	4.00	4.00	4.00	3.00
243.00	6.00	2.00	3.00	1.00	15.00	4.00	4.00	4.00	1.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	2.00	2.00	4.00	4.00	3.00
244.00	6.00	2.00	3.00	1.00	15.00	4.00	4.00	4.00	1.00	3.00	3.00	4.00	4.00	3.00	3.00	3.00	3.00	2.00	4.00	4.00	4.00	3.00	4.00
245.00	6.00	1.00	3.00	1.00	15.00	4.00	4.00	4.00	2.00	4.00	4.00	4.00	4.00	3.00	4.00	4.00	4.00	4.00	2.00	4.00	4.00	4.00	3.00
246.00	6.00	1.00	2.00	1.00	15.00	2.00	4.00	4.00	3.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	3.00	4.00	4.00	4.00	3.00	4.00
247.00	6.00	1.00	2.00	1.00	15.00	4.00	3.00	3.00	2.00	4.00	4.00	4.00	4.00	3.00	3.00	3.00	3.00	2.00	3.00	4.00	4.00	4.00	3.00
248.00	6.00	1.00	2.00	2.00	16.00	4.00	4.00	4.00	2.00	2.00	4.00	2.00	4.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	2.00	2.00
249.00	6.00	1.00	2.00	2.00	16.00	3.00	4.00	4.00	3.00	3.00	3.00	3.00	4.00	4.00	4.00	4.00	4.00	3.00	4.00	3.00	2.00	3.00	4.00
250.00	6.00	1.00	3.00	2.00	16.00	3.00	2.00	3.00	1.00	3.00	1.00	3.00	2.00	4.00	4.00	4.00	4.00	3.00	4.00	3.00	3.00	4.00	4.00
251.00	6.00	1.00	3.00	2.00	16.00	4.00	4.00	4.00	3.00	1.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	3.00	4.00	4.00	4.00	4.00	3.00
252.00	6.00	1.00	3.00	2.00	16.00	4.00	4.00	4.00	4.00	1.00	3.00	3.00	3.00	4.00	4.00	4.00	4.00	3.00	4.00	4.00	4.00	3.00	4.00
253.00	6.00	2.00	1.00	2.00	17.00	4.00	4.00	#####	3.00	4.00	#####	1.00	4.00	4.00	4.00	4.00	4.00	2.00	4.00	4.00	4.00	4.00	4.00
254.00	6.00	2.00	1.00	2.00	17.00	2.00	4.00	4.00	4.00	1.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	2.00	3.00	4.00	4.00	4.00	4.00
255.00	6.00	2.00	1.00	2.00	17.00	4.00	4.00	4.00	4.00	2.00	4.00	2.00	4.00	3.00	4.00	4.00	4.00	1.00	3.00	4.00	4.00	4.00	4.00
256.00	6.00	2.00	1.00	2.00	17.00	4.00	3.00	4.00	2.00	3.00	2.00	3.00	4.00	4.00	4.00	4.00	4.00	2.00	1.00	3.00	3.00	3.00	4.00
257.00	6.00	1.00	1.00	2.00	17.00	2.00	3.00	4.00	2.00	4.00	2.00	4.00	3.00	4.00	4.00	4.00	4.00	1.00	1.00	3.00	3.00	4.00	4.00
258.00	6.00	1.00	1.00	2.00	17.00	4.00	2.00	4.00	2.00	2.00	2.00	2.00	4.00	3.00	3.00	3.00	3.00	2.00	2.00	4.00	4.00	4.00	3.00
259.00	6.00	1.00	1.00	2.00	17.00	4.00	4.00	4.00	4.00	1.00	4.00	1.00	4.00	4.00	4.00	4.00	4.00	2.00	4.00	2.00	3.00	4.00	4.00
260.00	6.00	1.00	1.00	2.00	17.00	4.00	2.00	4.00	4.00	1.00	3.00	3.00	4.00	4.00	4.00	4.00	4.00	1.00	2.00	3.00	4.00	4.00	4.00
261.00	6.00	2.00	1.00	2.00	17.00	4.00	4.00	4.00	4.00	#####	3.00	3.00	4.00	4.00	4.00	4.00	4.00	3.00	3.00	4.00	4.00	4.00	4.00
262.00	6.00	2.00	1.00	2.00	17.00	4.00	4.00	4.00	4.00	3.00	3.00	3.00	4.00	4.00	4.00	4.00	4.00	2.00	2.00	4.00	4.00	4.00	4.00
263.00	6.00	2.00	1.00	2.00	17.00	4.00	4.00	4.00	4.00	2.00	2.00	2.00	4.00	4.00	4.00	4.00	4.00	3.00	2.00	3.00	4.00	4.00	4.00
264.00	6.00	2.00	1.00	2.00	17.00	4.00	3.00	4.00	2.00	3.00	3.00	3.00	4.00	4.00	4.00	4.00	4.00	2.00	1.00	3.00	3.00	4.00	4.00
265.00	6.00	2.00	1.00	2.00	17.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	2.00	2.00	3.00	4.00	4.00	4.00
266.00	7.00	2.00	3.00	2.00	8.00	3.00	4.00	#####	4.00	4.00	#####	1.00	4.00	4.00	4.00	4.00	4.00	2.00	4.00	4.00	4.00	4.00	4.00
267.00	7.00	2.00	3.00	2.00	8.00	4.00	4.00	4.00	4.00	1.00	4.00	1.00	4.00	4.00	4.00	4.00	4.00	2.00	4.00	4.00	4.00	4.00	4.00
268.00	7.00	2.00	2.00	2.00	8.00	4.00	4.00	4.00	4.00	1.00	4.00	1.00	4.00	4.00	4.00	4.00	4.00	3.00	4.00	4.00	4.00	4.00	3.00
269.00	7.00	2.00	2.00	2.00	8.00	4.00	4.00	4.00	4.00	1.00	4.00	1.00	4.00	4.00	4.00	4.00	4.00	2.00	3.00	4.00	4.00	4.00	4.00
270.00	7.00	2.00	3.00	2.00	8.00	3.00	4.00	4.00	4.00	1.00	3.00	3.00	4.00	4.00	4.00	4.00	4.00	2.00	2.00	4.00	4.00	4.00	3.00
271.00	7.00	2.00	2.00	2.00	8.00	4.00	4.00	4.00	4.00	1.00	4.00	1.00	4.00	4.00	4.00	4.00	4.00	3.00	3.00	4.00	4.00	4.00	4.00
272.00	7.00	1.00	2.00	2.00	8.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	2.00	2.00	4.00	4.00	4.00	4.00
273.00	7.00	2.00	2.00	2.00	8.00	4.00	4.00	4.00	4.00	1.00	4.00	1.00	4.00	4.00	4.00	4.00	4.00	3.00	3.00	4.00	4.00	4.00	4.00
274.00	7.00	2.00	3.00	2.00	8.00	3.00	4.00	4.00	4.00	3.00	2.00	2.00	4.00	4.00	4.00	4.00	4.00	2.00	2.00	3.00	4.00	4.00	3.00
275.00	7.00	2.00	3.00	2.00	8.00	4.00	3.00	4.00	4.00	1.00	3.00	3.00	4.00	4.00	4.00	3.00	3.00	1.00	1.00	3.00	3.00	4.00	4.00
276.00	7.00	1.00	3.00	2.00	8.00	4.00	4.00	4.00	4.00	2.00	4.00	2.00	4.00	4.00	4.00	4.00	4.00	2.00	4.00	4.00	4.00	4.00	4.00
277.00	7.00	2.00	2.00	2.00	8.00	4.00	4.00	4.00	4.00	1.00	4.00	1.00	4.00	4.00	4.00	4.00	4.00	3.00	3.00	4.00	4.00	4.00	3.00
278.00	7.00	1.00	3.00	2.00	8.00	4.00	4.00	4.00	4.00	3.00	4.00	1.00	4.00	4.00	4.00	4.00	4.00	2.00	4.00	4.00	4.00	4.00	4.00
279.00	7.00	1.00	2.00	2.00	8.00	4.00	4.00	4.00	4.00	1.00	4.00	1.00	4.00	4.00	4.00	4.00	4.00	3.00	4.00	4.00	4.00	4.00	1.00
280.00	7.00	1.00	2.00	1.00	4.00	4.00	3.00	4.00	4.00	1.00	2.00	3.00	4.00	4.00	4.00	4.00	4.00	2.00	2.00	4.00	4.00	4.00	4.00
281.00	7.00	1.00	1.00	1.00	4.00	4.00	4.00	4.00	4.00	3.00	4.00	1.00	2.00	3.00	3.00	3.00	3.00	2.00	2.00	3.00	4.00	4.00	4.00
282.00	7.00	1.00	1.00	1.00	4.00	4.00	4.00	4.00	4.00	3.00	3.00	3.00	4.00	4.00	4.00	4.00	4.00	2.00	2.00	3.00	4.00	4.00	2.00
283.00	7.00	1.00	1.00	1.00	4.00	3.00	3.00	3.00	3.00	2.00	2.00	2.00	4.00	4.00	4.00	4.00	4.00	3.00	3.00	4.00	4.00	4.00	4.00
284.00	7.00	1.00	1.00	1.00	4.00	4.00	4.00	4.00	4.00	3.00	4.00	4.00	3.00	4.00	4.00	4.00	4.00	2.00	4.00	4.00	4.00	4.00	3.00
285.00	7.00	1.00	1.00	1.00	4.00	3.00	4.00	3.00	4.00	3.00	1.00	4.00	3.00	4.00	3.00	3.00	3.00	2.00	2.00	3.00	3.00	3.00	3.00
286.00	7.00	1.00	1.00	1.00	4.00	3.00	4.00	4.00	4.00	3.00	4.00	4.00	3.00	4.00	4.00	4.00	4.00	3.00	1.00	4.00	4.00	4.00	4.00
287.00	7.00	2.00	1.00	1.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	3.00	4.00	4.00	4.00	4.00	4.00	3.00	2.00	4.00	4.00	4.00	4.00
288.00	7.00	1.00	2.00	1.00	4.00	3.00	3.00	4.00	4.00	2.00	3.00	3.00	4.00	4.00	4.00	4.00	4.00	2.00	2.00	3.00	3.00	3.00	3.00
289.00	7.00	1.00	1.00	1.00	4.00	4.00	4.00	4.00	4.00	1.00													





Q22	Q23	Q24	Q25	Q26	Q27	Q28	MARK	F1	F2	F3	F4	FAC1_1	FAC2_1	FAC3_1	FAC4_1	FAC5_1
4.00	2.00	4.00	3.00	3.00	3.00	3.00	10.00	3.00	3.60	3.00	2.60	-1.17762	.87473	.37412	-1.47724	.26797
2.00	2.00	3.00	1.00	3.00	2.00	4.00	8.00	2.80	3.40	2.50	2.60	-.72723	1.02589	-1.16285	-1.56733	1.00900
3.00	4.00	3.00	2.00	3.00	1.00	2.00	3.00	2.20	2.40	2.50	3.00	-1.92938	-1.69460	.54045	-.36926	1.57656
4.00	4.00	4.00	4.00	4.00	4.00	4.00	10.00	4.00	4.00	4.00	4.00	.24505	.49349	1.26504	.26589	-.30325
4.00	4.00	4.00	4.00	4.00	4.00	4.00	#NULL!	4.00	4.00	4.00	4.00	.20725	.52369	1.27784	.29533	1.29003
4.00	4.00	4.00	4.00	4.00	4.00	4.00	10.00	4.00	4.00	4.00	3.40	.95424	.81034	1.85707	-3.30206	1.14490
4.00	4.00	4.00	4.00	4.00	4.00	#NULL!	10.00	4.00	4.00	4.00	4.00	.26395	.47838	1.25863	.25116	-1.09989
3.00	4.00	3.00	2.00	2.00	1.00	2.00	6.50	2.00	3.20	2.50	3.00	-2.89585	.53855	.36752	-1.20705	-1.07417
2.00	4.00	3.00	2.00	2.00	1.00	2.00	6.50	1.80	3.60	3.00	3.40	-3.69543	1.03671	.31824	1.17355	-1.04162
4.00	2.00	4.00	4.00	4.00	2.00	4.00	10.00	3.60	4.00	3.25	3.60	.11249	.59115	.04288	.14621	-.56991
1.00	2.00	4.00	3.00	2.00	2.00	4.00	7.50	3.20	3.00	2.75	2.40	.11192	-.42789	-.56798	-1.81723	.24248
4.00	4.00	4.00	4.00	4.00	3.00	4.00	8.00	3.40	3.60	3.50	3.80	-.13023	-.52527	.29486	1.42943	-1.29740
4.00	4.00	4.00	3.00	4.00	3.00	3.00	10.00	3.20	3.40	3.25	3.60	-.45299	.63275	-.24390	.43430	.73831
3.00	4.00	4.00	3.00	3.00	4.00	4.00	8.00	3.60	3.80	3.75	3.80	-.14772	.40074	.54729	.81861	-.85920
4.00	4.00	4.00	3.00	4.00	3.00	3.00	10.00	3.40	3.80	4.00	3.60	-.47949	.63353	1.35547	-.47335	-.83950
2.00	3.00	2.00	3.00	2.00	1.00	2.00	1.00	2.40	2.40	2.50	3.20	-1.43053	-1.84315	.02333	.21075	-1.54555
4.00	4.00	4.00	4.00	4.00	4.00	4.00	10.00	4.00	4.00	4.00	4.00	.26395	.47838	1.25863	.25116	-1.09989
4.00	2.00	4.00	4.00	4.00	4.00	4.00	10.00	4.00	4.00	4.00	3.40	.77934	.51479	1.34270	-1.47853	-.55817
4.00	4.00	4.00	4.00	4.00	4.00	3.00	10.00	3.60	4.00	3.75	4.00	-.76061	.64030	1.44492	.53473	.25143
4.00	4.00	4.00	4.00	4.00	4.00	4.00	10.00	4.00	4.00	4.00	4.00	.22615	.50859	1.27144	.28061	.49339
3.00	3.00	4.00	3.00	3.00	3.00	3.00	9.00	3.20	3.20	3.25	3.40	-.04220	-1.10012	-.18474	1.40077	.51491
1.00	4.00	4.00	1.00	4.00	2.00	2.00	9.00	2.40	3.40	2.75	3.40	-1.93073	.51442	-.89542	1.40465	2.57687
4.00	4.00	4.00	4.00	4.00	4.00	3.00	9.50	3.80	3.80	3.75	3.80	.07277	.11711	.76485	.89358	.44952
4.00	4.00	4.00	4.00	4.00	4.00	3.00	#NULL!	4.00	4.00	4.00	4.00	.20725	.52369	1.27784	.29533	1.29003
4.00	4.00	4.00	4.00	4.00	4.00	3.00	10.00	4.00	4.00	4.00	4.00	.20725	.52369	1.27784	.29533	1.29003
3.00	4.00	4.00	4.00	4.00	4.00	3.00	10.00	3.80	3.80	3.75	3.80	-.07054	.44280	.79073	.58942	-.09403
4.00	2.00	4.00	3.00	4.00	2.00	4.00	9.00	3.00	3.80	3.75	3.20	-1.41723	.78701	1.08037	.02342	1.63312
3.00	4.00	4.00	4.00	3.00	4.00	4.00	9.00	3.80	3.40	3.50	3.40	.13178	-.33618	.34479	.68473	-.68520
1.00	4.00	4.00	2.00	3.00	4.00	3.00	9.00	3.60	3.20	1.50	3.40	1.05744	-.15368	-3.05244	.53259	2.50282
1.00	4.00	4.00	2.00	3.00	4.00	3.00	9.00	3.60	3.20	1.50	3.40	1.05744	-.15368	-3.05244	.53259	2.50282
2.00	4.00	4.00	3.00	4.00	4.00	3.00	9.00	3.40	3.20	1.75	3.60	.66336	-.63468	-2.43022	1.29334	.07382
4.00	3.00	4.00	4.00	4.00	4.00	3.00	9.00	4.00	3.80	3.75	3.60	.52381	.16785	.70852	.30447	-.12784
4.00	4.00	4.00	4.00	4.00	4.00	3.00	10.00	4.00	4.00	4.00	4.00	.26395	.47838	1.25863	.25116	-1.09989
3.00	3.00	3.00	4.00	4.00	3.00	4.00	9.00	3.40	3.60	3.50	3.60	-.39657	-.08188	.42411	.86968	-.44429
3.00	2.00	3.00	3.00	3.00	3.00	4.00	9.00	3.40	3.40	3.25	3.20	-.39456	-.38178	.53073	.06398	-.28367
4.00	4.00	4.00	4.00	4.00	4.00	3.00	9.50	3.60	3.60	3.50	3.80	-.27288	-.56219	1.01502	1.06781	-.91113
3.00	4.00	4.00	4.00	4.00	3.00	3.00	9.50	3.50	3.60	3.00	3.80	#NULL!	#NULL!	#NULL!	#NULL!	#NULL!
3.00	3.00	4.00	1.00	3.00	1.00	4.00	9.00	2.00	3.20	2.00	3.40	-1.80544	-.83886	-1.23325	1.52151	-1.79031
4.00	2.00	4.00	4.00	4.00	4.00	2.00	8.00	3.60	4.00	4.00	3.60	-.25682	.34922	1.36679	.13096	-1.05961
3.00	2.00	4.00	4.00	4.00	4.00	3.00	8.00	3.80	3.80	3.50	3.40	.22334	.43436	.39892	.08101	-.08799
1.00	3.00	4.00	3.00	4.00	2.00	3.00	7.00	2.40	3.60	2.25	3.40	-1.98180	.13602	-.95301	1.49457	-.48908
3.00	4.00	3.00	3.00	4.00	2.00	3.00	6.00	2.60	3.00	3.00	3.40	-1.51936	-.85105	.02377	1.39460	.07186
2.00	1.00	4.00	3.00	2.00	2.00	3.00	5.00	2.40	3.60	1.25	2.80	-1.47981	.45961	-2.48315	.43433	-1.15949
3.00	1.00	4.00	2.00	3.00	2.00	3.00	6.00	2.00	3.80	2.75	2.80	-3.21412	1.38786	.17809	-.08014	-1.09151
3.00	4.00	4.00	4.00	3.00	3.00	3.00	8.00	3.40	3.80	2.50	3.20	-.55208	1.09804	-.38972	-1.24961	.01604
3.00	3.00	4.00	3.00	3.00	3.00	3.00	9.00	3.40	3.60	2.75	3.00	-.13814	.49296	-.12502	-1.65340	.60991
1.00	4.00	4.00	3.00	2.00	3.00	3.00	9.00	3.40	3.00	1.50	2.80	.56869	-.20138	-2.22475	-1.50782	.18484
1.00	#NULL!	2.00	3.00	4.00	4.00	4.00	10.00	3.40	3.60	2.50	3.25	#NULL!	#NULL!	#NULL!	#NULL!	#NULL!
4.00	2.00	3.00	3.00	2.00	4.00	3.00	9.00	3.60	3.00	3.00	2.40	.86666	-.101272	.84933	-3.85577	1.15739
1.00	1.00	4.00	1.00	3.00	1.00	2.00	8.00	2.40	2.40	2.75	3.00	-.80294	-2.52041	.16675	.30723	-.63680
4.00	3.00	4.00	4.00	4.00	3.00	4.00	10.00	3.80	4.00	3.75	3.80	.07152	.51638	.82153	.30891	1.23743
4.00	4.00	4.00	4.00	4.00	4.00	2.00	6.00	3.80	3.80	3.50	3.80	-.08876	.13404	.75394	.81723	-.34765
1.00	4.00	2.00	2.00	4.00	2.00	2.00	6.00	2.40	2.60	3.00	3.40	-2.09735	-.99258	.66291	.84557	1.74448
3.00	4.00	4.00	4.00	4.00	4.00	4.00	9.00	4.00	4.00	3.25	4.00	.34810	.43319	.25323	.59803	.47546
3.00	4.00	4.00	4.00	4.00	4.00	4.00	10.00	4.00	4.00	3.25	4.00	.47816	.63426	.17452	.30498	-.38684
1.00	4.00	4.00	3.00	2.00	1.00	2.00	7.00	2.40	4.00	2.50	3.60	-2.65628	2.64099	-.62815	-.32034	.97158
1.00	1.00	4.00	1.00	3.00	1.00	2.00	5.00	2.00	3.40	2.00	2.40	-1.669318	1.32089	-1.66092	-1.36935	.32988
3.00	4.00	4.00	4.00	4.00	4.00	4.00	9.00	4.00	3.80	3.50	3.80	.42873	.35244	.22887	.64629	.94574
2.00	3.00	3.00	4.00	4.00	4.00	4.00	9.00	4.00	3.40	2.75	3.60	1.33466	-.24978	-1.05109	.09595	.94798
3.00	2.00	3.00	1.00	#####	2.00	4.00	10.00	1.80	3.80	2.25	3.25	#NULL!	#NULL!	#NULL!	#NULL!	#NULL!
4.00	1.00	3.00	3.00	3.00	2.00	3.00	8.00	2.80	3.00	4.00	3.00	-.79463	-1.21074	2.31691	-1.83342	-1.28427
3.00	4.00	4.00	2.00	4.00	4.00	4.00	10.00	3.60	3.40	3.75	3.60	.72174	-.35470	.64864	-.66210	.57482
3.00	4.00	4.00	4.00	4.00	4.00	3.00	10.00	4.00	4.00	3.75	4.00	.28096	.62469	.84018	.33050	1.35205
4.00	4.00	4.00	4.00	4.00	4.00	3.00	9.00	4.00	3.80	3.00	3.80	#NULL!	#NULL!	#NULL!	#NULL!	#NULL!
3.00	4.00	4.00	3.00	4.00	1.00	3.00	8.00	3.00	3.60	3.50	3.80	-1.17636	.34639	.61944	1.04703	.90545
2.00	4.00	3.00	3.00	4.00	2.00	2.00	8.00	3.00	3.20	2.75	3.60	-.71071	-.21005	-.32058	.25014	-.51202
4.00	4.00	4.00	4.00	4.00	4.00	4.00	10.00	4.00	3.80	4.00	3.80	.33452	.32396	1.00986	.46035	.86787
2.00	4.00	4.00	3.00	4.00	4.00	4.00	10.00	3.80	3.80	3.25	3.60	.59614	.84392	-.10514	-.77466	.57283
3.00	4.00	4.00	3.00	3.00	1.00	3.00	3.00	2.00	3.40	3.25	3.20	-3.15676	1.13342	-.09571	1.60900	.54757
4.00	4.00	4.00	4.00	4.00	4.00	3.00	8.00	4.00	4.00	4.00	4.00	.26395	.47838	1.25863	.25116	-1.09989
4.00	4.00	4.00	4.00	4.00	4.00	3.00	10.00	4.00	3.60	4.00	3.60	.44289	.13932	.74827	.64009	1.24235
4.00	4.00	3.00	4.00	4.00	3.00	2.00	8.00	3.80	2.80	3.00	3.40	.97276	-1.61118	-.48007	1.14731	2.12490
4.00	4.00	4.00	4.00	4.00	4.00	3.00	10.00	4.00	4.00	4.00	4.00	.26395	.47838	1.25863	.25116	-1.09989
4.00	4.00	4.00	4.00	4.00	4.00	3.00	10.00	4.00	4.00	4.00	4.00	#NULL!	#NULL!	#NULL!	#NULL!	#NULL!
3.00	4.00	4.00	3.00	3.00												

Q22	Q23	Q24	Q25	Q26	Q27	Q28	MARK	F1	F2	F3	F4	FAC1_1	FAC2_1	FAC3_1	FAC4_1	FAC5_1
1.00	4.00	4.00	4.00	1.00	3.00	4.00	9.00	3.80	3.40	2.25	2.60	1.12755	.82008	-1.62413	-2.91014	1.59657
3.00	3.00	2.00	4.00	2.00	3.00	3.00	8.00	3.40	3.20	2.50	3.20	-.44228	-.59406	-.20762	-.16440	-1.08459
1.00	2.00	3.00	1.00	4.00	2.00	2.00	3.00	2.40	2.60	1.25	3.40	-.41008	-2.21949	-2.29631	1.47051	-1.59163
1.00	1.00	2.00	1.00	1.00	1.00	2.00	1.00	1.20	2.80	1.00	1.80	-3.68955	.04580	-1.68881	-1.51044	-.34321
1.00	1.00	#####	1.00	2.00	1.00	2.00	5.00	1.20	2.50	1.50	2.40	#NULL!	#NULL!	#NULL!	#NULL!	#NULL!
2.00	4.00	4.00	2.00	4.00	1.00	2.00	5.00	1.40	2.80	2.00	3.40	-3.88713	-.31086	-.61942	2.46294	-1.29433
4.00	4.00	4.00	4.00	4.00	4.00	2.00	10.00	4.00	3.20	3.75	3.60	1.11752	-1.01121	.30335	.74552	1.49467
2.00	2.00	4.00	3.00	4.00	3.00	3.00	9.00	3.60	3.40	3.00	3.20	.90066	.19646	-1.19693	.04415	-.25327
3.00	3.00	4.00	3.00	4.00	3.00	3.00	10.00	3.00	3.80	3.25	3.60	-1.55452	1.03065	.43163	.73342	1.15157
4.00	2.00	3.00	3.00	4.00	3.00	2.00	9.00	3.25	3.40	4.00	3.00	#NULL!	#NULL!	#NULL!	#NULL!	#NULL!
4.00	4.00	4.00	4.00	4.00	4.00	4.00	10.00	4.00	4.00	4.00	4.00	.26395	.47838	1.25863	.25116	-1.09989
2.00	4.00	2.00	1.00	2.00	2.00	3.00	9.50	2.20	3.40	2.75	3.60	-2.46411	.48823	.04466	.31348	-.68104
1.00	3.00	2.00	4.00	3.00	4.00	3.00	9.50	3.40	2.40	2.25	3.20	.65469	-2.58087	-.86381	.59332	-1.61191
#####	3.00	3.00	4.00	4.00	4.00	3.00	9.00	4.00	3.50	3.67	3.75	#NULL!	#NULL!	#NULL!	#NULL!	#NULL!
4.00	4.00	4.00	4.00	4.00	3.00	3.00	9.00	3.40	3.80	3.75	3.80	-.68597	.22218	.92170	1.10821	-1.33621
4.00	4.00	4.00	4.00	3.00	4.00	4.00	10.00	4.00	3.80	2.00	3.60	.20978	.49476	1.03397	-.00545	.96502
4.00	2.00	3.00	4.00	3.00	4.00	2.00	10.00	3.60	3.80	2.75	3.20	.64416	.27336	-.27903	-1.51034	-2.21889
3.00	3.00	4.00	4.00	4.00	3.00	3.00	10.00	3.80	4.00	3.50	3.80	.29419	.80335	.29876	.03631	-.35950
4.00	4.00	4.00	3.00	4.00	4.00	3.00	10.00	3.80	3.60	3.00	3.60	.48797	.32900	-.68068	.68858	-.40375
4.00	4.00	4.00	3.00	4.00	4.00	4.00	10.00	3.80	3.60	4.00	3.80	.17343	-.19055	1.26159	.43054	-.83961
3.00	4.00	4.00	4.00	4.00	4.00	4.00	10.00	4.00	3.80	3.75	3.80	.44604	.39475	.55939	.46607	-.66340
4.00	4.00	4.00	4.00	4.00	3.00	4.00	10.00	3.60	4.00	3.75	4.00	-.23056	.65161	.79275	.59024	.15586
3.00	4.00	4.00	3.00	4.00	3.00	3.00	9.00	3.40	3.80	3.25	3.60	-.67007	.97180	.05392	.22207	.56270
1.00	4.00	4.00	4.00	4.00	4.00	4.00	10.00	4.00	3.80	2.00	3.60	.90728	.92820	-2.02246	-.04621	-.54801
4.00	4.00	4.00	4.00	4.00	4.00	4.00	10.00	4.00	3.80	4.00	3.80	.37232	.29375	.99705	.43091	-.72541
4.00	3.00	4.00	4.00	4.00	2.00	3.00	9.00	3.20	3.80	3.25	3.80	-.49025	.01925	.26695	.80654	-.89822
4.00	4.00	4.00	4.00	4.00	4.00	4.00	10.00	4.00	4.00	3.25	3.80	.47282	1.03154	.15187	-.56955	.36135
1.00	3.00	4.00	3.00	3.00	3.00	3.00	8.50	3.40	3.60	2.50	3.20	-.06864	.98977	-.91779	-1.18960	1.87988
1.00	1.00	3.00	1.00	4.00	1.00	#NULL!	7.00	1.20	3.00	2.50	2.40	-3.63798	.43586	-.13798	-.82578	-.69623
1.00	3.00	4.00	4.00	3.00	3.00	4.00	9.00	3.20	3.80	2.00	3.20	-.31821	1.33061	-1.62986	-.92703	-.46048
2.00	2.00	4.00	4.00	4.00	4.00	3.00	9.00	4.00	3.60	2.75	3.40	1.52707	.31346	-1.29138	-.44940	-.83911
3.00	4.00	4.00	4.00	4.00	4.00	4.00	10.00	4.00	4.00	3.75	4.00	.29987	.60959	.83378	.31577	.55540
2.00	4.00	3.00	3.00	4.00	3.00	3.00	9.00	3.00	3.00	2.75	3.40	-.71577	-.83241	-.34986	.86993	.25574
1.00	2.00	2.00	1.00	1.00	1.00	2.00	1.00	1.20	1.80	1.50	1.20	-2.88826	-1.70297	-.13720	-4.43891	.35418
4.00	4.00	4.00	2.00	4.00	4.00	4.00	10.00	3.60	3.80	3.25	3.80	.15875	.94265	-.25849	.14981	-.62134
4.00	4.00	4.00	4.00	3.00	3.00	4.00	10.00	3.80	3.60	3.75	3.60	.02533	.21539	.82453	.05921	.07831
4.00	3.00	4.00	4.00	4.00	3.00	4.00	10.00	3.80	3.80	4.00	3.60	.19720	.37405	.89047	.30844	.00277
3.00	1.00	2.00	3.00	4.00	2.00	2.00	9.00	3.00	2.80	2.00	2.60	-.45977	-1.16057	-1.06808	-.41681	.71393
3.00	4.00	3.00	4.00	4.00	2.00	3.00	6.00	3.40	3.80	3.00	4.00	-.30139	.86376	-.20127	.27756	.27323
1.00	1.00	1.00	1.00	1.00	1.00	2.00	1.00	1.00	2.00	1.00	1.40	-3.46762	-2.03584	.15609	-4.42795	-1.06898
4.00	4.00	4.00	4.00	4.00	3.00	4.00	10.00	3.80	3.80	4.00	3.80	.03565	.42628	.95458	.59581	.90269
2.00	2.00	1.00	#NULL!	1.00	1.00	4.00	10.00	3.25	1.60	2.25	2.40	#NULL!	#NULL!	#NULL!	#NULL!	#NULL!
3.00	4.00	4.00	4.00	4.00	3.00	3.00	10.00	3.80	4.00	3.75	3.80	-.10949	.77369	.89302	-.04569	.01431
1.00	3.00	4.00	4.00	4.00	4.00	3.00	9.00	3.60	3.80	2.25	3.60	.31495	.86201	-1.62139	.46710	.95224
3.00	4.00	4.00	4.00	4.00	3.00	4.00	10.00	3.80	3.40	3.00	3.60	.39929	-.23055	-.48578	1.00745	-.45894
1.00	2.00	4.00	3.00	3.00	2.00	3.00	8.00	3.20	4.00	2.00	2.60	.00651	1.48694	-1.38904	-3.20101	-.17177
3.00	4.00	4.00	4.00	#####	3.00	4.00	10.00	3.40	4.00	3.00	4.00	#NULL!	#NULL!	#NULL!	#NULL!	#NULL!
2.00	4.00	4.00	4.00	4.00	4.00	4.00	10.00	4.00	4.00	2.33	4.00	#NULL!	#NULL!	#NULL!	#NULL!	#NULL!
2.00	2.00	3.00	3.00	3.00	4.00	3.00	10.00	3.80	3.60	2.50	2.60	.86202	.90972	-1.02532	-2.87483	.49701
1.00	1.00	4.00	2.00	3.00	1.00	3.00	8.00	2.40	3.40	1.50	2.00	-1.20681	1.24055	-2.62664	-1.45648	-.14173
4.00	4.00	4.00	4.00	4.00	4.00	3.00	10.00	4.00	4.00	4.00	4.00	.20725	.52369	1.27784	.29533	1.29003
1.00	4.00	2.00	4.00	4.00	2.00	4.00	5.00	3.60	3.60	2.50	4.00	.48071	.58819	-1.21686	.17477	-.94388
4.00	2.00	4.00	4.00	3.00	4.00	4.00	9.00	3.80	3.60	3.75	3.20	.64540	-.06270	.45075	-.38450	1.30100
4.00	2.00	4.00	4.00	4.00	3.00	3.00	10.00	3.80	4.00	3.50	3.60	.36472	.60781	.34179	-.10601	.28772
4.00	4.00	4.00	4.00	4.00	4.00	3.00	10.00	4.00	3.80	3.25	3.80	.72948	.75493	-.23705	.07767	.17845
2.00	4.00	3.00	4.00	4.00	4.00	3.00	9.00	3.40	3.40	2.50	3.40	.13964	-.39495	-.56800	-.30471	.51783
4.00	4.00	4.00	4.00	4.00	4.00	4.00	10.00	4.00	3.80	4.00	4.00	.53432	-.01532	1.22705	.27265	1.40827
1.00	2.00	4.00	4.00	4.00	3.00	3.00	10.00	3.80	4.00	3.00	3.60	.58427	.96822	-.63426	-.16600	-.33875
4.00	4.00	4.00	4.00	4.00	4.00	4.00	10.00	4.00	3.80	3.25	3.80	.76728	.72472	-.24985	.04823	-.87483
4.00	4.00	3.00	4.00	4.00	3.00	#NULL!	8.00	3.80	3.20	3.25	3.60	.76182	-.72824	-.36903	.87707	.60554
4.00	3.00	4.00	4.00	4.00	4.00	4.00	10.00	4.00	4.00	4.00	3.80	.40660	.44126	1.20093	-.02148	-1.20316
1.00	2.00	4.00	4.00	4.00	4.00	3.00	10.00	4.00	4.00	2.50	3.60	1.16535	1.13811	-1.41666	-.57130	-1.26981
4.00	4.00	4.00	4.00	4.00	4.00	3.00	9.00	3.80	4.00	3.75	4.00	-.23213	.45392	1.14665	.52527	-.51466
4.00	4.00	1.00	4.00	4.00	3.00	3.00	9.00	3.80	2.40	4.00	4.00	.36500	-3.37981	2.83713	.39356	-1.69756
3.00	2.00	4.00	4.00	4.00	3.00	3.00	10.00	3.80	3.60	3.00	3.20	.59791	-.02698	-.68426	.66446	.16024
3.00	2.00	4.00	4.00	4.00	3.00	3.00	9.00	3.60	3.60	3.00	3.20	.10750	-.02540	-.35322	.75380	-.17869
4.00	2.00	4.00	4.00	4.00	4.00	3.00	10.00	4.00	3.60	3.00	3.40	1.77117	-.49879	-.07102	-1.53075	-1.40956
4.00	3.00	2.00	2.00	4.00	2.00	2.00	8.00	1.60	2.40	2.00	3.40	-2.69783	-2.09356	-.47373	2.21582	-1.57897
3.00	4.00	4.00	4.00	4.00	4.00	3.00	10.00	4.00	3.60	3.25	3.80	.55040	-.06063	.18082	.55621	-.08745
4.00	4.00	3.00	3.00	3.00	4.00	3.00	10.00	3.80	3.00	3.50	3.20	.86166	-1.22354	.68971	-.81540	.44345
1.00	1.00	1.00	1.00	2.00	1.00	2.00	1.00	1.00	1.60	1.00	1.20	-2.52234	-2.56552	-1.03593	-3.68306	-.66132
4.00	4.00	4.00	4.00	4.00	3.00	3.00	8.00	3.40	3.60	3.25	3.80	-.42120	-.33131	.53770	1.06098	-1.72276
4.00	4.00	4.00	4.00	4.00	4.00	3.00	10.00	4.00	3.60	3.50	3.60	.53618	-.09865	.26101	.87363	.54254
4.00	2.00	4.00	3.00	4.00	4.00	3.00	10.00	3.80	4.00	4.00	3.60	.22608	.52820	1.14531	-.2	



Q22	Q23	Q24	Q25	Q26	Q27	Q28	MARK	F1	F2	F3	F4	FAC1_1	FAC2_1	FAC3_1	FAC4_1	FAC5_1
3.00	2.00	3.00	4.00	4.00	3.00	4.00	10.00	3.80	3.40	3.25	3.20	.76163	-.10623	-.41547	.23430	1.01191
1.00	4.00	4.00	1.00	1.00	1.00	3.00	5.50	1.60	3.80	2.00	3.00	-4.04314	2.20904	-.81699	-.82453	-.66392
4.00	4.00	4.00	4.00	4.00	4.00	4.00	10.00	4.00	4.00	3.75	4.00	.37670	.63714	.84940	-.13833	-.35305
1.00	3.00	2.00	2.00	1.00	1.00	2.00	6.00	2.60	3.00	2.50	2.40	-.1.03697	.92208	-.171594	-2.24829	3.04366
3.00	3.00	4.00	3.00	3.00	4.00	4.00	9.00	3.40	4.00	3.50	3.40	-.58265	1.29682	.97121	-1.60587	-1.16159
4.00	4.00	4.00	4.00	3.00	4.00	4.00	10.00	4.00	4.00	4.00	4.00	.24505	.49349	1.26504	.26589	-.30325
4.00	1.00	4.00	4.00	4.00	3.00	3.00	8.00	4.00	4.00	3.75	3.60	.03758	.62218	1.16644	-.56534	-.66392
4.00	4.00	4.00	4.00	4.00	4.00	3.00	10.00	4.00	3.40	4.00	3.40	.57016	-.06041	.48028	-.80512	-.82019
2.00	3.00	3.00	4.00	4.00	4.00	2.00	9.00	3.80	2.80	3.00	3.20	.99973	.32622	-.13345	.69571	.56973
2.00	4.00	4.00	4.00	4.00	3.00	4.00	10.00	3.80	3.60	4.00	3.60	-.18182	-.1.43328	-.77402	1.03427	.86384
2.00	4.00	3.00	2.00	1.00	2.00	2.00	5.00	2.40	2.80	2.00	3.40	-1.22546	-.1.25182	-.1.96564	2.69697	.30397
3.00	3.00	3.00	4.00	4.00	3.00	2.00	8.00	3.60	3.20	3.25	3.60	.69038	-.1.14991	.19321	.65433	.84951
2.00	3.00	3.00	4.00	4.00	3.00	2.00	9.00	3.60	2.80	3.00	3.20	.50206	-.1.40033	-.54908	1.14289	.63657
4.00	4.00	4.00	4.00	4.00	2.00	4.00	10.00	3.60	4.00	4.00	4.00	-.37159	.71324	1.16088	.55152	.56302
2.00	3.00	4.00	2.00	3.00	2.00	#NULL!	9.00	3.00	3.80	2.50	3.40	-.107895	1.27329	-.91536	22972	-.05186
1.00	3.00	4.00	2.00	3.00	2.00	#NULL!	9.00	3.20	3.80	2.25	3.40	-.29499	1.24766	-.1.76804	.19304	.28305
2.00	3.00	4.00	3.00	4.00	3.00	3.00	9.00	3.20	3.80	2.00	3.20	-.16377	1.12407	-.1.67437	-.90038	-.82669
1.00	3.00	4.00	3.00	3.00	4.00	3.00	10.00	3.20	3.40	2.00	3.20	-.25432	-.07424	-.1.77343	.87752	.16035
3.00	2.00	4.00	4.00	4.00	3.00	4.00	10.00	3.60	3.80	3.00	3.40	.40786	.54977	-.78727	.28836	-.44479
2.00	4.00	4.00	4.00	4.00	4.00	4.00	10.00	4.00	4.00	3.00	4.00	.55188	.73526	-.26314	.34015	-.32483
2.00	4.00	4.00	4.00	4.00	4.00	3.00	10.00	3.80	4.00	3.25	4.00	.24416	.92637	-.08760	.32940	-.99086
2.00	4.00	4.00	4.00	4.00	4.00	3.00	10.00	4.00	3.80	2.50	3.80	.93520	.85421	-.1.46850	.26933	-.73495
3.00	3.00	4.00	4.00	4.00	4.00	3.00	10.00	3.80	3.80	2.75	3.60	.49745	.32333	-.78701	.61507	-.95741
2.00	4.00	4.00	2.00	4.00	4.00	3.00	10.00	3.20	3.80	3.25	3.60	-.1.04180	.84791	.08148	.61659	1.24054
3.00	2.00	4.00	4.00	4.00	4.00	4.00	10.00	4.00	3.60	2.75	3.00	1.10137	.44466	-.1.09163	-.93601	-.68859
3.00	4.00	4.00	4.00	4.00	4.00	4.00	10.00	4.00	4.00	3.50	4.00	.33926	.52197	.48405	.45182	-.22538
2.00	4.00	4.00	4.00	4.00	4.00	4.00	10.00	3.80	3.60	3.25	3.40	.60060	.41174	-.18832	-.33587	-.24435
4.00	4.00	4.00	4.00	4.00	3.00	3.00	12.00	3.80	3.50	3.00	3.60	#NULL!	#NULL!	#NULL!	#NULL!	#NULL!
2.00	4.00	#####	4.00	2.00	1.00	3.00	5.00	3.20	3.67	2.75	3.20	#NULL!	#NULL!	#NULL!	#NULL!	#NULL!
2.00	4.00	2.00	1.00	2.00	1.00	3.00	7.00	2.00	2.40	1.75	2.60	-.1.90487	-.1.01571	-.1.00553	-.1.28615	2.50839
2.00	4.00	2.00	1.00	1.00	1.00	3.00	7.00	2.60	2.80	2.25	2.80	-.1.73110	.00417	-.69416	-.78313	2.53100
3.00	4.00	4.00	4.00	4.00	4.00	4.00	9.50	3.75	4.00	2.50	4.00	#NULL!	#NULL!	#NULL!	#NULL!	#NULL!
2.00	4.00	3.00	3.00	4.00	2.00	3.00	10.00	3.20	3.80	1.75	4.00	-.20113	.53854	-.1.93737	1.08715	-.70148
3.00	4.00	4.00	4.00	4.00	4.00	3.00	10.00	4.00	4.00	2.00	4.00	-.67831	.96091	-.1.60150	1.13784	-.66163
4.00	4.00	4.00	4.00	4.00	4.00	4.00	10.00	4.00	4.00	3.50	4.00	.29329	.31709	.68448	.54814	-.38320
4.00	4.00	4.00	4.00	4.00	4.00	4.00	10.00	3.80	4.00	3.25	4.00	.13544	.35778	.26107	.72232	-.75555
4.00	4.00	4.00	4.00	4.00	4.00	4.00	10.00	3.40	1.60	1.75	3.20	1.82947	-.4.90439	-.1.63617	1.56249	-.51809
1.00	2.00	4.00	4.00	4.00	4.00	2.00	8.00	3.00	3.20	3.00	2.80	.26554	.42097	.92171	.41665	-.28739
1.00	1.00	4.00	3.00	4.00	3.00	3.00	8.00	3.00	3.20	2.25	2.20	.18604	-.7.7782	-.1.80105	.02382	1.65212
2.00	2.00	4.00	1.00	1.00	1.00	2.00	8.00	2.00	3.20	2.25	2.20	-.2.46608	1.60381	-.1.56273	-.1.57433	2.74908
2.00	4.00	4.00	4.00	4.00	3.00	3.00	9.00	3.80	3.60	2.00	3.00	1.19949	.37898	-.1.73370	-.1.57433	-.1.17879
2.00	4.00	4.00	4.00	4.00	4.00	3.00	10.00	4.00	4.00	2.75	4.00	.76854	1.14156	-.85078	-.03174	.46800
2.00	3.00	2.00	4.00	4.00	4.00	3.00	8.00	3.40	4.00	2.75	4.00	.76854	1.14156	-.85078	-.03174	.46800
2.00	3.00	2.00	4.00	4.00	4.00	3.00	8.00	3.40	1.60	1.75	3.20	1.82947	-.4.90439	-.1.63617	1.56249	-.51809
1.00	2.00	4.00	4.00	4.00	4.00	2.00	9.50	3.80	3.40	3.25	3.20	.86404	-.4.1547	-.1.4123	-.41735	-.18556
4.00	1.00	4.00	4.00	4.00	4.00	4.00	9.50	3.80	4.00	3.50	3.40	.51674	.36539	.33159	-.21237	-.17292
4.00	4.00	4.00	4.00	4.00	4.00	3.00	10.00	3.80	3.80	3.75	3.40	.28692	.74236	.85295	-.1.21308	1.02523
2.00	2.00	4.00	4.00	4.00	4.00	2.00	8.00	4.00	4.00	3.25	3.60	.80943	.76490	-.14133	-.33663	-.43557
3.00	4.00	4.00	4.00	4.00	4.00	4.00	10.00	4.00	3.80	3.25	3.60	.45647	.24856	-.00836	.77777	.84994
2.00	4.00	4.00	4.00	4.00	4.00	3.00	10.00	3.40	3.60	3.00	3.60	-.30162	.55508	-.31288	.16972	1.47213
3.00	3.00	2.00	3.00	3.00	4.00	3.00	8.00	3.60	3.60	3.00	3.20	.68789	.58097	-.1.0748	-.2.47227	-.62446
1.00	4.00	4.00	4.00	4.00	4.00	4.00	10.00	4.00	4.00	3.00	4.00	.59785	.94014	-.46358	.24383	-.16702
4.00	4.00	4.00	4.00	4.00	4.00	4.00	10.00	3.80	4.00	3.25	4.00	.11654	.37289	.26747	.73704	.04109
1.00	4.00	4.00	4.00	4.00	4.00	4.00	10.00	4.00	4.00	3.00	4.00	.59785	.94014	-.46358	.24383	-.16702
1.00	4.00	4.00	4.00	4.00	4.00	4.00	10.00	4.00	4.00	3.00	4.00	.59785	.94014	-.46358	.24383	-.16702
1.00	4.00	4.00	4.00	4.00	4.00	4.00	10.00	4.00	4.00	3.00	4.00	.59785	.94014	-.46358	.24383	-.16702
3.00	3.00	3.00	3.00	3.00	1.00	3.00	8.00	3.00	2.60	1.50	3.00	-.44366	-.1.12838	-.2.22240	.94350	1.39763
3.00	3.00	4.00	4.00	4.00	4.00	4.00	10.00	3.80	4.00	3.25	3.80	.32194	.69946	.06153	.16779	-.45530
4.00	1.00	4.00	4.00	4.00	4.00	4.00	10.00	3.80	4.00	3.50	3.20	1.02577	.49990	.00547	-.6.12170	.45444
3.00	4.00	3.00	3.00	2.00	2.00	3.00	8.00	2.60	2.40	3.00	3.00	-.1.91089	-.1.62310	.73942	.82907	.14837
4.00	4.00	3.00	4.00	4.00	3.00	3.00	7.50	3.40	3.40	3.50	3.40	-.78401	.20431	1.05178	-.55617	1.55538
4.00	4.00	4.00	4.00	4.00	4.00	4.00	10.00	4.00	3.80	3.75	3.80	.35501	.25144	.66653	.61112	.88373
2.00	4.00	4.00	2.00	1.00	1.00	2.00	8.00	2.60	3.40	2.75	3.40	-.2.25266	.17384	.06364	.88566	.07689
3.00	3.00	4.00	4.00	4.00	3.00	4.00	10.00	3.80	3.80	2.75	3.60	.58245	.58397	-.95901	.37075	-.11477
4.00	1.00	4.00	4.00	4.00	2.00	2.00	6.00	3.00	2.80	3.75	2.60	-.42319	-.2.09679	1.55285	-.1.01056	-.1.15469
1.00	2.00	3.00	3.00	3.00	2.00	2.00	7.00	2.80	2.40	2.25	2.20	-.84064	-.1.48009	-.36613	-.1.45781	.74581
1.00	4.00	3.00	4.00	4.00	4.00	3.00	10.00	3.60	3.40	2.50	3.80	.48809	.00851	-.1.26779	.63312	.12417
2.00	4.00	4.00	4.00	4.00	4.00	3.00	8.00	3.60	4.00	3.50	4.00	-.40945	.83740	.61034	.49563	-.27975
2.00	2.00	4.00	4.00	4.00	4.00	4.00	10.00	3.80	3.80	3.00	3.60	.20385	-.01620	.07407	.25785	-.1.45305
1.00	1.00	4.00	4.00	4.00	3.00	3.00	10.00	3.80	4.00	2.75	3.40	.77357	.81211	-.93560	-.32188	-.33446
1.00	1.00	4.00	4.00	4.00	3.00	3.00	10.00	3.80	4.00	2.00	3.40	1.06462	.99554	-.2.00409	-.44551	-.1.52987
2.00	3.00	4.00	4.00	4.00	4.00	3.00	10.00	4.00	3.80	3.00	3.40	1.10256	.68308	-.97343	-.1.0217	-.1.0217
3.00	4.00	4.00	4.00	4.00	4.00	4.00	9.00	4.00	3.80	2.00	3.60	1.22518	.80473	-.1.96208	-.62826	-.75162
2.0																

	Q22	Q23	Q24	Q25	Q26	Q27	Q28	MARK	F1	F2	F3	F4	FACTOR_1	FACTOR_2	FACTOR_3	FACTOR_4	FACTOR_5
300	200	400	400	400	300	300	400	900	3.80	3.80	3.50	3.40	5.4521	5.6159	-0.2053	-0.0565	-0.8829
300	100	400	400	400	300	300	400	900	3.60	3.60	3.50	3.20	5.8620	1.08733	-0.8017	-3.54366	-23.166
400	200	400	300	400	300	300	400	900	3.60	3.60	3.50	3.20	2.5829	3.6261	-1.7929	-3.1889	1.96006
300	400	200	300	#####	200	300	300	800	3.00	2.80	3.75	3.33	NULL	NULL	NULL	NULL	NULL
200	100	400	400	400	200	100	400	300	3.40	4.00	2.25	3.40	1.05583	-1.21227	-1.15065	-2.52095	2.24197
200	100	400	400	400	400	400	300	800	3.80	3.00	3.00	3.20	1.36165	-1.48780	-1.5408	-3.7744	-1.42780
300	100	300	400	400	400	300	400	900	3.80	3.20	3.25	3.20	9.8177	-6.5059	-0.3104	-4.5544	-2.6659
300	100	400	400	400	400	400	400	1000	3.40	3.60	3.50	3.00	-0.8203	-1.5421	1.01404	-1.19228	1.49799
400	100	400	400	400	400	400	400	900	3.40	3.40	2.75	2.80	8.3613	-1.35311	-1.20713	-1.76418	-4.4521
400	100	300	400	200	200	300	400	500	2.40	4.00	4.00	2.60	2.12560	1.92637	3.9969	0.0898	1.03807
300	100	300	400	400	400	300	400	1000	3.80	3.60	3.50	3.00	1.05485	2.1050	2.0591	-1.57815	-1.01177
300	100	400	400	400	400	400	400	1000	3.80	3.60	3.25	3.20	1.05618	-1.0690	-3.2170	-3.1981	-8.7384
300	300	400	400	#####	400	400	400	1000	3.60	3.80	3.00	3.33	NULL	NULL	NULL	NULL	NULL
400	100	400	400	400	400	400	400	1000	4.00	4.00	4.00	2.60	6.4987	1.5149	80.420	-1.17168	-2.19299
400	300	400	400	400	400	400	400	1000	4.00	3.80	3.75	3.60	6.2772	4.1539	5.3011	0.04543	-0.81855
400	400	400	400	400	400	400	400	3000	3.40	3.60	2.50	3.60	-1.70734	5.1211	-1.36137	1.10559	-2.2666
200	300	400	200	400	400	100	200	1000	2.40	3.40	2.50	2.80	-1.79222	1.27420	-1.57267	1.33883	1.03807
100	300	300	300	400	400	300	300	900	3.40	2.80	2.25	2.80	500.083	-1.31587	-9.9887	-3.1437	1.32887
100	100	400	400	400	400	100	300	500	3.20	3.60	2.75	3.00	-0.1535	3.5973	-1.61090	9.90787	-6.6110
100	100	400	200	400	400	300	300	800	2.80	3.80	1.75	3.20	-1.70714	9.5062	-2.28165	5.2485	-1.5514
300	400	400	400	400	400	300	300	1000	3.80	3.80	3.50	4.00	0.02874	6.0803	5.4128	5.8272	4.9442
400	400	400	400	400	400	400	400	900	4.00	4.00	3.80	3.80	1.62067	-1.51431	-6.3475	-1.2624	0.02788
100	200	400	400	400	400	200	400	800	3.40	3.80	2.25	3.40	-0.06598	8.2338	-1.57574	5.59168	1.73555
400	400	400	400	400	400	400	400	900	3.40	3.20	3.25	3.60	0.7722	-5.4901	-0.4933	7.4206	1.77555
100	400	400	400	400	400	400	400	1000	4.00	4.00	2.75	3.75	NULL	NULL	NULL	NULL	NULL
100	400	400	400	400	400	400	400	1000	4.00	4.00	4.00	2.75	3.75	NULL	NULL	NULL	NULL
100	400	400	400	400	400	400	400	1000	4.00	4.00	3.75	4.00	7.4840	1.06870	1.88561	1.0154	-1.0134
300	400	300	400	400	400	400	400	1000	4.00	4.00	3.60	3.75	4.00	82187	-3.3138	88967	0.6587
300	400	400	400	400	400	400	400	1000	4.00	4.00	3.00	4.00	62146	7.9418	-3.35362	1.8198	-1.1216
300	400	400	400	400	400	300	300	900	3.80	3.40	3.00	3.40	7.4427	0.0374	-7.5584	1.5277	-1.1056
400	400	400	400	400	400	400	400	1000	4.00	4.00	3.80	3.75	50397	4.3741	5.8142	3.0335	-7.7552
400	400	400	400	400	400	400	400	1000	4.00	4.00	3.80	3.80	3.3162	3.3906	1.01626	4.7507	1.6645
400	400	400	400	400	400	400	400	1000	4.00	4.00	3.75	4.00	3.9560	6.2204	8.4300	1.2360	-1.1497
400	400	400	400	400	400	400	400	1000	4.00	4.00	3.75	4.00	-2.23975	5.6825	1.7230	1.2360	1.08559
200	300	300	300	400	200	300	300	900	3.80	3.80	3.00	2.50	1.12476	-4.6256	-1.58365	-8.7742	1.6711
300	300	300	300	200	400	400	400	1000	3.60	3.40	3.00	3.00	-2.23975	5.6825	1.7230	1.2360	1.08559
300	400	400	400	400	400	400	400	1000	3.60	3.40	3.50	4.00	-2.27431	2.7661	1.7209	1.2360	1.08559
300	400	400	400	400	400	400	400	1000	3.60	3.40	3.75	3.60	-0.0537	-0.0038	9.4452	-5.4637	2.06339
300	400	300	300	300	300	300	300	900	3.40	3.40	3.75	3.60	-0.0537	-0.0038	9.4452	-5.4637	2.06339
200	400	400	200	400	400	300	300	900	3.00	2.80	2.75	3.00	-1.31144	-7.6787	-2.7885	-1.05511	-1.6721
300	100	200	300	200	300	300	300	900	2.60	3.00	3.00	3.40	-1.09837	-1.19139	0.1079	-5.4169	1.1567
300	200	400	400	400	400	400	400	900	4.00	3.60	3.00	3.00	9.6734	0.0678	-3.35023	-1.1664	-3.4389
100	200	200	300	300	300	300	300	500	3.00	3.00	2.60	2.25	2.80	-2.6879	-1.41586	-9.2910	-1.9712
100	200	200	300	300	300	300	300	1000	4.00	4.00	3.80	3.25	3.80	7.6728	7.2472	-2.4985	0.0423
400	100	400	400	400	400	400	400	1000	4.00	4.00	3.60	4.00	9.0683	-0.00226	5.6235	-2.0728	-6.6077
400	100	400	400	400	400	400	400	1000	4.00	4.00	3.60	4.00	9.0683	-0.00226	5.6235	-2.0728	-6.6077
100	400	200	200	400	300	300	200	800	3.60	2.80	1.50	3.60	9.2869	-1.59604	-2.06920	6.4661	4.0595
100	400	200	200	300	200	200	400	800	2.40	2.00	1.50	2.00	-6.5668	-2.86758	-5.6787	-2.58617	-5.5900
200	300	300	300	100	300	200	300	800	2.40	2.80	2.25	2.80	-1.05098	-8.4286	-9.7168	-5.2807	1.0818
200	300	400	400	400	400	400	400	950	3.80	3.80	2.25	3.80	1.0875	-3.4593	-3.7976	6.2815	-1.1557
200	400	400	400	400	400	400	400	950	3.80	3.80	2.25	3.80	1.0875	-3.4593	-3.7976	6.2815	-1.1557
200	400	400	400	400	400	400	400	950	3.80	3.80	2.25	3.80	1.0875	-3.4593	-3.7976	6.2815	-1.1557
200	400	400	400	400	400	400	400	950	3.80	3.80	2.25	3.80	1.0875	-3.4593	-3.7976	6.2815	-1.1557
200	400	400	400	400	400	400	400	950	3.80	3.80	2.25	3.80	1.0875	-3.4593	-3.7976	6.2815	-1.1557
200	400	400	400	400	400	400	400	950	3.80	3.80	2.25	3.80	1.0875	-3.4593	-3.7976	6.2815	-1.1557
200	400	400	400	400	400	400	400	950	3.80	3.80	2.25	3.80	1.0875	-3.4593	-3.7976	6.2815	-1.1557
200	400	400	400	400	400	400	400	950	3.80	3.80	2.25	3.80	1.0875	-3.4593	-3.7976	6.2815	-1.1557
200	400	400	400	400	400	400	400	950	3.80	3.80	2.25	3.80	1.0875	-3.4593	-3.7976	6.2815	-1.1557
200	400	400	400	400	400	400	400	950	3.80	3.80	2.25	3.80	1.0875	-3.4593	-3.7976	6.2815	-1.1557
200	400	400	400	400	400	400	400	950	3.80	3.80	2.25	3.80	1.0875	-3.4593	-3.7976	6.2815	-1.1557
200	400	400	400	400	400	400	400	950	3.80	3.80	2.25	3.80	1.0875	-3.4593	-3.7976	6.2815	-1.1557
200	400	400	400	400	400	400	400	950	3.80	3.80	2.25	3.80	1.0875	-3.4593	-3.7976	6.2815	-1.1557
200	400	400	400	400	400	400	400	950	3.80	3.80	2.25	3.80	1.0875	-3.4593	-3.7976	6.2815	-1.1557
200	400	400	400	400	400	400	400	950	3.80	3.80	2.25	3.80	1.0875	-3.4593	-3.7976	6.2815	-1.1557
200	400	400	400	400	400	400	400	950	3.80	3.80	2.25	3.80	1.0875	-3.4593	-3.7976	6.2815	-1.1557
200	400	400	400	400	400	400	400	950	3.80	3.80	2.25	3.80	1.0875	-3.4593	-3.7976	6.2815	-1.1557
200	400	400	400	400	400	400	400	950	3.80	3.80	2.25	3.80	1.0875	-3.4593	-3.7976	6.2815	-1.1557
200	400	400	400	400	400	400	400	950	3.80	3.80	2.25	3.80	1.0875	-3.4593	-3.7976	6.2815	-1.1557
200	400	400	400	400	400	400	400	950	3.80	3.80	2.25	3.80	1.0875	-3.4593	-3.7976	6.2815	-1.1557
200	400	400	400	400	400	400	400	950	3.80	3.80	2.25	3.80	1.0875	-3.4593	-3.7976	6.2815	-1.1557
200	400	400	400	400	400	400	400	950	3.80	3.80	2.25	3.80	1.0875	-3.4593	-3.7976	6.2815	-1.1557
200	400	400	400	400	400	400	400	950	3.80	3.80	2.25	3.80	1.0875	-3.4593	-3.7976	6.2815	-1.1557
200	400	400	400	400	400	400	400	950	3.80	3.80	2.25	3.80	1.0875	-3.4593	-3.7976	6.2815	-1.1557
200	400	400	400	400	400	400											

Q22	Q23	Q24	Q25	Q26	Q27	Q28	MARK	F1	F2	F3	F4	FAC1_1	FAC2_1	FAC3_1	FAC4_1	FAC5_1	
4.00	4.00	4.00	4.00	4.00	4.00	3.00	9.50	4.00	3.80	3.75	3.80	50397	43741	58142	30335	-77522	
2.00	4.00	4.00	4.00	3.00	4.00	3.00	10.00	4.00	4.00	2.75	3.60	81944	1.16154	-57410	-1.44778	-1.01085	
2.00	3.00	4.00	3.00	4.00	3.00	4.00	9.50	3.60	3.80	3.25	3.60	17202	82867	-40480	30201	20374	
3.00	3.00	4.00	3.00	4.00	4.00	4.00	10.00	3.40	3.60	3.25	3.80	-20611	-21213	40146	46697	-44999	
4.00	4.00	4.00	3.00	4.00	4.00	4.00	10.00	3.80	4.00	3.75	4.00	-07652	56014	93020	49689	1.43264	
4.00	4.00	4.00	4.00	4.00	4.00	4.00	10.00	4.00	3.60	4.00	3.80	69939	-24526	94625	40823	-60718	
3.00	4.00	4.00	4.00	4.00	4.00	3.00	10.00	4.00	4.00	3.50	4.00	43152	75325	41815	18821	50560	
4.00	4.00	4.00	4.00	4.00	4.00	4.00	#NULL!	4.00	3.60	3.50	3.60	59503	21047	-01069	66330	1.20840	
3.00	3.00	4.00	4.00	4.00	4.00	4.00	4.00	10.00	4.00	3.80	3.25	3.60	72918	41250	-14477	21208	-11564
3.00	4.00	4.00	4.00	4.00	4.00	4.00	10.00	4.00	3.80	3.50	3.80	46653	32223	21606	61684	-64754	
3.00	3.00	3.00	2.00	4.00	1.00	2.00	8.00	2.20	3.00	3.00	3.40	-2.20098	-04959	03980	1.06524	1.25099	
3.00	4.00	4.00	3.00	4.00	4.00	4.00	10.00	3.80	3.80	3.75	3.80	10397	53392	56788	54631	1.05663	
3.00	3.00	4.00	4.00	4.00	4.00	3.00	10.00	4.00	3.80	3.25	3.60	83309	66005	-32318	-04697	-06964	
3.00	4.00	4.00	3.00	4.00	4.00	3.00	10.00	3.60	4.00	3.50	4.00	-25450	52797	47195	80435	-42118	
3.00	3.00	4.00	4.00	4.00	4.00	#NULL!	#NULL!	4.00	3.80	3.25	3.60	83309	66005	-32318	-04697	-06964	
3.00	3.00	4.00	4.00	4.00	4.00	4.00	10.00	4.00	3.60	3.50	3.40	66810	11442	02208	54883	1.90193	
3.00	3.00	4.00	3.00	4.00	3.00	4.00	10.00	3.40	3.80	2.50	3.60	-09472	27191	-1.13603	1.13309	-34071	
3.00	3.00	4.00	3.00	2.00	3.00	3.00	9.00	2.80	3.80	3.25	3.20	-1.94427	1.30067	43254	-09487	-14736	
4.00	4.00	4.00	4.00	4.00	4.00	3.00	10.00	3.80	3.60	3.50	3.60	33203	-40896	1.90565	-1.82034	-02988	
2.00	1.00	2.00	3.00	3.00	3.00	4.00	#NULL!	3.20	2.40	2.00	2.60	46584	-2.18153	-1.17912	-56181	-49274	
2.00	4.00	4.00	4.00	4.00	4.00	3.00	10.00	4.00	3.80	3.25	3.80	1.00794	16440	18226	-74954	-89016	
1.00	3.00	1.00	3.00	4.00	2.00	3.00	10.00	2.80	1.80	1.75	2.40	50499	-3.03392	-81798	-2.67161	64631	
2.00	1.00	2.00	4.00	3.00	4.00	4.00	9.00	4.00	2.40	3.25	3.00	1.78353	-2.77646	47427	-88955	1.42119	
4.00	4.00	4.00	3.00	3.00	4.00	4.00	10.00	3.80	3.60	3.50	3.60	31863	-14189	38549	27548	-46323	
4.00	4.00	4.00	4.00	4.00	3.00	4.00	9.00	3.80	3.80	4.00	4.00	27325	05680	1.15896	37867	-15020	
3.00	1.00	3.00	4.00	4.00	4.00	2.00	5.00	3.80	2.60	3.00	3.00	1.15653	-2.70043	55566	-51517	1.15066	
2.00	3.00	3.00	3.00	3.00	4.00	3.00	9.00	3.60	2.80	3.00	3.20	66211	-1.50479	-34829	31032	95759	
3.00	1.00	2.00	3.00	3.00	2.00	#NULL!	#NULL!	2.80	2.60	3.00	2.60	-23550	-1.97025	64633	-1.69335	-1.13559	
1.00	1.00	1.00	1.00	1.00	1.00	2.00	1.00	1.00	1.00	1.00	1.00	-2.47248	-4.09150	-20623	-4.17969	-1.12114	
4.00	3.00	3.00	1.00	1.00	3.00	2.00	6.00	3.00	3.00	3.25	3.00	-10291	-1.35046	47864	-69873	2.32531	
4.00	4.00	4.00	4.00	4.00	2.00	2.00	9.00	3.00	3.80	3.75	3.60	-1.70692	81902	1.15315	72504	1.69875	
2.00	1.00	3.00	4.00	4.00	1.00	#NULL!	#NULL!	3.40	3.00	2.75	3.00	1.08604	-60898	-1.41018	-22215	-67952	
3.00	2.00	3.00	4.00	4.00	4.00	3.00	10.00	4.00	3.40	3.25	3.40	1.29084	-54667	-26191	-09902	03586	
2.00	2.00	2.00	3.00	4.00	3.00	2.00	5.00	2.80	2.00	2.50	3.20	-19575	-3.98886	08600	1.53775	-1.56885	
4.00	3.00	4.00	3.00	4.00	3.00	#NULL!	#NULL!	3.20	3.60	3.25	3.60	-92631	-07169	91306	05287	1.33629	
1.00	1.00	1.00	1.00	2.00	1.00	2.00	1.00	1.60	1.20	1.00	1.80	-1.56531	-4.29213	-1.70668	-40452	17200	
1.00	3.00	3.00	3.00	3.00	3.00	2.00	7.00	3.00	3.00	2.25	3.00	-01021	-18786	-1.34300	-93688	03872	
4.00	4.00	4.00	4.00	4.00	4.00	3.00	10.00	4.00	3.40	4.00	3.60	75106	-38458	70388	63214	2.15722	
2.00	3.00	3.00	1.00	2.00	2.00	2.00	7.00	2.00	2.80	2.00	2.60	-2.00161	-49270	-92614	-93362	-91860	
4.00	4.00	4.00	4.00	4.00	4.00	#NULL!	#NULL!	4.00	3.40	4.00	3.00	36291	-15396	1.06665	-81446	2.81942	
4.00	4.00	3.00	4.00	4.00	2.00	2.00	9.00	3.00	3.20	3.75	3.40	-1.99866	-41822	2.13362	14290	1.09283	
3.00	4.00	4.00	3.00	3.00	3.00	3.00	9.00	3.40	3.80	3.50	3.60	-70025	45861	85613	-22854	83001	
3.00	3.00	2.00	3.00	3.00	2.00	4.00	10.00	3.00	2.80	2.75	3.60	-36068	-2.19033	21977	68872	-37044	
3.00	2.00	4.00	3.00	4.00	3.00	3.00	9.50	3.60	4.00	2.75	3.40	54982	92173	-45387	-1.23454	17083	
4.00	4.00	3.00	4.00	4.00	4.00	4.00	10.00	4.00	3.40	4.00	3.20	1.07788	-11419	1.21909	-1.82267	-42281	
2.00	2.00	4.00	4.00	4.00	4.00	3.00	10.00	4.00	3.80	2.75	3.40	1.07720	62004	-1.05577	-15295	-20670	
3.00	1.00	2.00	3.00	4.00	3.00	2.00	8.00	2.80	3.00	2.75	3.20	-50972	-1.14882	-02324	15160	-1.48360	
1.00	2.00	3.00	4.00	4.00	4.00	4.00	9.50	3.80	3.40	2.25	3.40	1.28927	-39276	-1.79146	29170	48837	
3.00	2.00	4.00	4.00	4.00	4.00	4.00	10.00	4.00	3.80	3.50	3.40	82518	49437	04115	-17733	67353	
3.00	4.00	4.00	4.00	4.00	4.00	3.00	9.00	4.00	4.00	3.25	4.00	#NULL!	#NULL!	#NULL!	#NULL!	#NULL!	
3.00	3.00	2.00	3.00	3.00	2.00	2.00	9.00	2.80	2.40	2.25	2.80	-52238	-1.83824	-23685	-96836	64999	
4.00	4.00	4.00	4.00	4.00	4.00	3.00	9.00	4.00	3.80	3.50	3.80	49392	36373	35700	46428	72226	
1.00	3.00	4.00	3.00	4.00	2.00	2.00	8.00	3.00	3.00	2.75	3.20	16280	-81926	-82003	02123	14243	
2.00	3.00	4.00	4.00	4.00	4.00	3.00	9.50	3.80	4.00	3.00	3.80	52784	82761	-51344	09547	-1.50129	
4.00	2.00	4.00	4.00	4.00	4.00	3.00	10.00	4.00	3.40	3.25	3.00	1.12761	06388	-69722	15092	1.21487	
2.00	3.00	2.00	2.00	4.00	3.00	3.00	8.00	2.20	2.40	2.25	2.80	-1.25166	-1.66747	18014	-1.59566	-67700	
2.00	4.00	4.00	3.00	4.00	3.00	3.00	9.00	3.40	3.60	2.50	3.20	-07959	1.02349	-1.10511	-75822	80520	
1.00	4.00	3.00	4.00	3.00	2.00	2.00	8.00	3.00	3.00	2.25	3.40	-61572	-46392	-1.25220	96725	-69000	
4.00	4.00	4.00	4.00	4.00	4.00	4.00	10.00	4.00	4.00	4.00	4.00	26395	47838	1.25863	25116	-1.09989	
3.00	4.00	3.00	4.00	4.00	4.00	4.00	9.00	4.00	3.20	2.75	3.60	1.16215	-83345	-98864	90827	53694	
3.00	3.00	4.00	4.00	4.00	3.00	3.00	9.00	3.20	3.80	2.00	3.80	-29842	-04348	-1.22178	99192	-2.52895	
4.00	4.00	3.00	4.00	4.00	3.00	3.00	10.00	3.80	3.20	3.50	3.60	76023	-67083	-03210	71158	-20695	
3.00	4.00	4.00	4.00	4.00	4.00	4.00	10.00	3.80	3.80	2.50	3.60	74483	39437	-90436	-27269	-1.30969	
1.00	1.00	1.00	2.00	4.00	1.00	2.00	7.00	2.40	3.00	1.75	3.20	-82074	-79686	-1.85242	91661	-1.80088	
4.00	4.00	4.00	4.00	4.00	4.00	4.00	9.00	3.80	3.40	3.75	3.80	43874	-66192	1.02441	33814	-1.12519	
4.00	4.00	4.00	4.00	4.00	3.00	4.00	10.00	3.60	3.40	4.00	3.60	-00768	-27952	86073	84678	37149	
3.00	1.00	4.00	4.00	4.00	3.00	3.00	9.00	3.60	3.75	3.50	3.25	#NULL!	#NULL!	#NULL!	#NULL!	#NULL!	
2.00	1.00	2.00	3.00	4.00	3.00	3.00	7.00	3.20	3.00	2.50	3.20	#NULL!	#NULL!	#NULL!	#NULL!	#NULL!	
3.00	3.00	4.00	4.00	4.00	4.00	4.00	10.00	4.00	4.00	3.50	3.80	61197	68592	34764	-11387	-1.19095	
4.00	4.00	4.00	4.00	4.00	4.00	4.00	10.00	4.00	4.00	3.75	4.00	29170	37450	1.02141	38265	-1.19569	
4.00	4.00	4.00	4.00	4.00	4.00	3.00	10.00	4.00	4.00	4.00	4.00	24505	49349	1.26504	26589	-30325	
1.00	1.00	4.00	4.00	4.00	1.00	2.00	7.00	3.20	3.80	2.00	3.20	-09029	87765	-2.05978	43626	1.14255	
4.00	4.00	4.00	4.00	4.00	4.00	4.00	10.00	4.00	4.00	4.00	4.00	26395	47838	1.25863	25116	-1.09989	
4.00	1.00	2.00	4.00	4.00	3.00	3.00	5.00	3.80	3.40	3.25	3.40	1.15283	-66975	12510	-60358	98761	
#####	#NULL!																

Q22	Q23	Q24	Q25	Q26	Q27	Q28	MARK	F1	F2	F3	F4	FAC1_1	FAC2_1	FAC3_1	FAC4_1	FAC5_1
4.00	4.00	4.00	4.00	3.00	3.00	4.00	10.00	3.60	3.80	4.00	3.60	-60592	.79973	1.16445	.14403	1.08095
4.00	3.00	4.00	1.00	4.00	3.00	3.00	10.00	3.20	3.80	3.75	3.60	-.66894	.58195	.63389	.57758	-.50943
4.00	4.00	4.00	4.00	4.00	4.00	4.00	10.00	4.00	4.00	4.00	4.00	.20725	.52369	1.27784	.29533	1.29003
4.00	4.00	4.00	4.00	4.00	4.00	4.00	10.00	4.00	4.00	4.00	4.00	.20725	.52369	1.27784	.29533	1.29003
2.00	3.00	4.00	4.00	4.00	4.00	4.00	10.00	3.80	3.60	3.00	3.40	.49897	-.00653	-.66698	1.00250	.74895
4.00	4.00	4.00	4.00	4.00	4.00	4.00	10.00	4.00	3.60	4.00	3.60	.48069	.10912	.73546	.61065	-.35093
1.00	1.00	3.00	3.00	4.00	2.00	2.00	5.00	2.20	2.75	1.50	2.60	#NULL!	#NULL!	#NULL!	#NULL!	#NULL!
4.00	2.00	4.00	4.00	3.00	4.00	4.00	10.00	4.00	3.60	3.75	2.80	1.36678	-.04639	1.01028	-2.85490	-.11249
4.00	1.00	4.00	4.00	4.00	3.00	4.00	9.00	3.60	3.80	4.00	3.20	.00372	.31765	.99359	-.14294	-1.22768
4.00	4.00	4.00	4.00	4.00	4.00	4.00	10.00	4.00	4.00	4.00	4.00	#NULL!	#NULL!	#NULL!	#NULL!	#NULL!
4.00	1.00	3.00	4.00	4.00	4.00	4.00	10.00	4.00	3.40	4.00	3.00	.98893	-.40156	.66622	-.22762	.16077
4.00	4.00	4.00	4.00	4.00	4.00	3.00	10.00	4.00	4.00	4.00	4.00	.20725	.52369	1.27784	.29533	1.29003
4.00	2.00	4.00	4.00	4.00	4.00	3.00	10.00	4.00	3.60	4.00	3.20	.70928	.08018	.63927	.10953	1.83245
4.00	2.00	2.00	3.00	4.00	2.00	2.00	7.00	2.60	2.60	3.25	3.00	-.86318	-1.66416	.45438	.19633	.71847
4.00	3.00	4.00	4.00	4.00	3.00	3.00	9.00	3.60	3.80	4.00	3.60	-.31964	.57670	1.07623	.32246	.08389
4.00	3.00	3.00	1.00	4.00	4.00	4.00	10.00	3.40	3.60	3.25	3.60	-.03373	.39901	-.14433	.18594	.28932
4.00	3.00	4.00	4.00	4.00	4.00	4.00	10.00	4.00	4.00	3.75	3.80	.39654	.36758	.97651	.13945	.29432
3.00	2.00	4.00	4.00	4.00	3.00	4.00	9.00	3.80	3.80	3.00	3.40	#NULL!	#NULL!	#NULL!	#NULL!	#NULL!
4.00	4.00	4.00	4.00	4.00	1.00	4.00	10.00	3.40	3.40	4.00	4.00	-.33545	-.97932	1.90577	.51879	-.92162
3.00	2.00	4.00	4.00	4.00	3.00	4.00	9.00	3.80	3.80	3.50	3.40	.54521	.58159	-.02053	-.05659	-.08829
3.00	2.00	4.00	4.00	4.00	3.00	4.00	9.00	3.80	3.80	3.75	3.40	.41356	.43793	.39510	.07097	-.03849
1.00	4.00	3.00	4.00	4.00	3.00	3.00	#NULL!	3.40	3.20	2.50	3.80	.54456	-.64857	-1.33277	.89746	-.87678
4.00	4.00	4.00	4.00	4.00	4.00	#NULL!	10.00	4.00	3.60	3.00	3.60	.89614	.46758	-.85477	.37874	-.48449
3.00	1.00	4.00	1.00	4.00	3.00	3.00	9.00	2.80	3.60	3.67	3.40	#NULL!	#NULL!	#NULL!	#NULL!	#NULL!
3.00	1.00	3.00	4.00	4.00	3.00	3.00	9.00	3.20	3.00	3.25	3.00	-.34966	-.94456	.42732	.31175	.43229
3.00	2.00	3.00	4.00	4.00	3.00	3.00	9.00	3.60	3.00	3.00	3.20	.89176	-1.62359	-.22418	.03628	-.08379
4.00	4.00	4.00	4.00	4.00	4.00	4.00	10.00	4.00	3.40	3.75	3.60	.83551	-.53378	.44744	.71947	-.32850
2.00	4.00	3.00	4.00	4.00	1.00	4.00	10.00	3.40	3.60	2.50	3.80	.01498	.51434	-1.35206	.91441	.14502
3.00	2.00	3.00	3.00	4.00	3.00	3.00	6.00	3.20	3.60	3.25	3.60	-.57104	-.19201	.47592	.41200	-.92019
2.00	1.00	3.00	3.00	4.00	3.00	2.00	6.50	3.00	3.40	2.75	3.00	#NULL!	#NULL!	#NULL!	#NULL!	#NULL!
3.00	2.00	3.00	3.00	4.00	3.00	3.00	9.00	3.00	3.60	3.25	3.60	-1.08787	.01063	.66169	.42602	-.83907
3.00	1.00	3.00	3.00	4.00	1.00	2.00	6.00	2.60	3.00	3.00	2.80	-1.41745	-.17402	-.33501	.80728	.55858
3.00	4.00	4.00	3.00	4.00	3.00	3.00	10.00	3.40	3.80	3.50	3.80	-.57982	.82796	.32831	.67755	.61101
3.00	4.00	4.00	4.00	4.00	3.00	4.00	10.00	3.80	3.60	3.75	3.60	.21774	.34265	.25533	.81072	1.33918
4.00	1.00	4.00	4.00	4.00	3.00	3.00	10.00	3.80	4.00	4.00	3.40	.39302	.46933	1.03024	-.43131	-1.37489
4.00	2.00	3.00	4.00	4.00	4.00	4.00	9.00	3.20	3.40	4.00	3.40	-.51550	-.33677	2.12081	-1.40828	-.28075
1.00	4.00	3.00	4.00	4.00	3.00	4.00	8.00	3.60	3.20	2.50	3.80	.58844	-1.01048	-.95537	1.14326	.94705
3.00	3.00	4.00	4.00	4.00	4.00	4.00	10.00	4.00	3.40	3.75	3.40	.60421	-.29195	.52719	.48882	1.92265
2.00	1.00	3.00	2.00	3.00	3.00	2.00	9.00	2.80	3.20	2.75	2.80	-.83541	.57521	-.91700	-.47102	.94807
3.00	2.00	2.00	3.00	4.00	3.00	4.00	9.00	3.00	2.80	3.75	3.00	-.38582	-1.25744	1.15004	-.46513	1.63185
4.00	4.00	4.00	4.00	2.00	4.00	4.00	8.00	4.00	3.60	3.75	3.20	.41065	.40962	1.10980	-1.71173	1.68555
4.00	4.00	4.00	4.00	4.00	4.00	4.00	10.00	4.00	3.80	4.00	3.80	.31562	.33906	1.01626	.47507	1.66451
4.00	4.00	4.00	4.00	4.00	4.00	4.00	10.00	4.00	4.00	4.00	4.00	.22615	.50859	1.27144	.28061	.49339
4.00	4.00	4.00	4.00	4.00	4.00	4.00	10.00	4.00	4.00	4.00	4.00	.22615	.50859	1.27144	.28061	.49339
4.00	4.00	4.00	4.00	4.00	4.00	4.00	10.00	4.00	4.00	3.75	4.00	.35780	.65225	.85581	.15305	.44359
2.00	4.00	4.00	4.00	4.00	3.00	3.00	10.00	3.80	4.00	3.00	4.00	.37582	1.07002	-.50323	.20183	-1.04066
#####	#NULL!	#####	#NULL!	#####	#####	#NULL!	#NULL!	4.00	4.00	4.00	4.00	#NULL!	#NULL!	#NULL!	#NULL!	#NULL!
3.00	3.00	4.00	3.00	4.00	3.00	4.00	10.00	3.60	3.80	2.75	3.80	.07903	-.19251	-.18858	.71329	-1.38042
4.00	4.00	4.00	4.00	4.00	4.00	4.00	10.00	4.00	3.60	3.50	4.00	1.18139	-.31232	.32577	-.04930	-.96303
3.00	3.00	4.00	4.00	4.00	3.00	4.00	10.00	3.60	3.60	3.50	3.60	.44014	-.02326	-.02140	.49512	-.18933
4.00	4.00	4.00	4.00	4.00	3.00	4.00	10.00	3.20	3.80	4.00	3.80	-1.13659	.34513	1.57959	.32253	-1.31839
4.00	4.00	4.00	4.00	4.00	4.00	4.00	10.00	4.00	4.00	4.00	4.00	.24505	.49349	1.26504	.26589	-.30325
3.00	1.00	3.00	3.00	4.00	3.00	4.00	8.00	3.40	3.60	2.75	3.20	.09930	-.14544	-.33866	-.44753	-.72107
3.00	3.00	4.00	3.00	4.00	3.00	4.00	10.00	3.60	3.80	2.75	3.80	.07903	-.19251	-.18858	.71329	-1.38042
4.00	1.00	4.00	4.00	4.00	3.00	3.00	10.00	3.80	4.00	3.75	3.40	.52467	.61299	.61461	-.55887	-1.42469
4.00	4.00	4.00	4.00	4.00	4.00	3.00	10.00	4.00	4.00	3.75	4.00	.39560	.62204	.84300	.12360	-1.14970
3.00	4.00	4.00	3.00	4.00	3.00	3.00	10.00	3.40	3.20	3.75	3.80	-.64058	-.95969	1.53576	.86747	-.32358
4.00	3.00	4.00	4.00	4.00	3.00	4.00	10.00	4.00	4.00	4.00	3.60	#NULL!	#NULL!	#NULL!	#NULL!	#NULL!
3.00	3.00	3.00	3.00	4.00	3.00	3.00	10.00	3.60	3.00	3.25	3.40	.38100	-1.57244	.57227	.15705	.15941
3.00	1.00	3.00	3.00	3.00	2.00	3.00	10.00	3.20	3.40	3.50	3.00	-.58857	-.45777	1.26815	-1.13504	-.50848
3.00	3.00	3.00	4.00	4.00	3.00	4.00	10.00	3.80	3.60	3.25	3.60	.52225	.13179	-.20868	.33176	.05572
4.00	3.00	3.00	4.00	4.00	4.00	4.00	10.00	3.80	3.20	3.50	3.40	.34812	-.77995	.61519	.48698	-.87729
4.00	4.00	4.00	4.00	4.00	4.00	4.00	#NULL!	4.00	4.00	4.00	4.00	.20725	.52369	1.27784	.29533	1.29003
4.00	3.00	4.00	4.00	4.00	4.00	4.00	10.00	4.00	3.60	3.75	3.40	.71719	.24586	.27493	.23989	1.08927
4.00	4.00	4.00	4.00	4.00	4.00	3.00	10.00	4.00	3.60	4.00	3.60	.48069	.10912	.73546	.61065	-.35093
4.00	3.00	4.00	4.00	4.00	4.00	4.00	10.00	4.00	3.80	4.00	3.60	.49607	.27173	.94575	.17299	-.03204
4.00	4.00	4.00	4.00	4.00	4.00	4.00	10.00	4.00	3.80	4.00	3.80	.37232	.29375	.99705	.43091	-.72541
1.00	4.00	2.00	1.00	3.00	3.00	3.00	8.00	2.20	2.60	2.00	3.40	-1.81790	-1.34310	-1.06942	1.49307	-.18630
3.00	2.00	2.00	2.00	3.00	3.00	3.00	8.00	2.60	2.80	3.25	3.20	-1.49735	-1.64041	1.14517	.46425	.18485
4.00	4.00	3.00	4.00	4.00	3.00	4.00	10.00	3.80	2.80	3.50	3.40	.58453	-1.96128	.91647	.50419	.33674
4.00	4.00	2.00	4.00	4.00	4.00	4.00	10.00	3.60	3.40	4.00	4.00	.19152	-1.08027	1.39363	.77656	-.78035
4.00	4.00	2.00	4.00	4.00	4.00	4.00	10.00	4.00	3.20	4.00	3.80	.85998	-1.04387	1.15400	.36755	1.03586
3.00	3.00	1.00	1.00	3.00	2.00	2.00	9.00	2.60	3.00	3.50	3.40	-1.81695	-.50023	1.04276	.42006	1.24289

Appendix 18 CENTER Q1 Q2 Q3 Q4 Q5 Q6 Q7 Q8 Q9 Q10 Q11 Q12 Q13 Q14 Q15 PROBLEM																
1.00	1.00	3.00	1.00	2.00	3.00	2.00	3.00	3.00	2.00	3.00	3.00	#NULL!	3.00	###	###	#NULL!
2.00	1.00	3.00	2.00	2.00	3.00	3.00	3.00	2.00	2.00	3.00	1.00	1.00	3.00	3.00	1.00	2.00
3.00	1.00	3.00	2.00	3.00	3.00	3.00	1.00	2.00	1.00	1.00	1.00	1.00	3.00	2.00	1.00	2.00
4.00	1.00	3.00	1.00	2.00	2.00	3.00	1.00	1.00	1.00	1.00	3.00	1.00	1.00	1.00	1.00	#NULL!
5.00	1.00	2.00	1.00	2.00	3.00	3.00	2.00	3.00	1.00	3.00	3.00	1.00	1.00	1.00	1.00	#NULL!
6.00	1.00	3.00	1.00	2.00	2.00	3.00	3.00	1.00	3.00	1.00	3.00	1.00	1.00	1.00	1.00	#NULL!
7.00	1.00	3.00	1.00	2.00	3.00	3.00	3.00	1.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00
8.00	1.00	2.00	1.00	3.00	2.00	2.00	3.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	#NULL!
9.00	1.00	3.00	2.00	1.00	3.00	3.00	3.00	2.00	1.00	3.00	1.00	1.00	1.00	1.00	1.00	#NULL!
10.00	1.00	3.00	3.00	3.00	3.00	2.00	3.00	1.00	3.00	3.00	3.00	1.00	3.00	1.00	1.00	#NULL!
11.00	1.00	3.00	3.00	2.00	1.00	3.00	3.00	1.00	2.00	3.00	3.00	1.00	3.00	1.00	1.00	1.00
12.00	1.00	2.00	1.00	1.00	2.00	1.00	2.00	1.00	1.00	3.00	1.00	1.00	1.00	1.00	1.00	#NULL!
13.00	2.00	3.00	1.00	2.00	3.00	3.00	3.00	1.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00
14.00	2.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	1.00	2.00	3.00	3.00	#NULL!
15.00	2.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	#NULL!	3.00	3.00	1.00	1.00	1.00	1.00	2.00
16.00	2.00	3.00	2.00	2.00	3.00	3.00	3.00	1.00	2.00	1.00	3.00	1.00	1.00	1.00	1.00	#NULL!
17.00	2.00	3.00	2.00	3.00	3.00	3.00	3.00	1.00	1.00	2.00	2.00	1.00	1.00	3.00	3.00	2.00
18.00	2.00	3.00	2.00	3.00	3.00	3.00	3.00	2.00	3.00	3.00	3.00	1.00	1.00	1.00	3.00	#NULL!
19.00	2.00	3.00	3.00	3.00	3.00	3.00	3.00	1.00	1.00	1.00	3.00	1.00	1.00	1.00	3.00	2.00
20.00	2.00	3.00	2.00	2.00	2.00	3.00	3.00	1.00	2.00	3.00	3.00	1.00	1.00	1.00	1.00	2.00
21.00	2.00	3.00	2.00	3.00	3.00	3.00	3.00	2.00	1.00	1.00	3.00	1.00	#NULL!	1.00	1.00	2.00
22.00	2.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	1.00	3.00	1.00	1.00	3.00	1.00	1.00	2.00
23.00	2.00	3.00	3.00	3.00	3.00	3.00	3.00	1.00	3.00	1.00	1.00	1.00	1.00	1.00	3.00	#NULL!
24.00	2.00	2.00	2.00	3.00	3.00	3.00	2.00	1.00	2.00	1.00	3.00	1.00	1.00	2.00	3.00	#NULL!
25.00	2.00	3.00	2.00	2.00	3.00	3.00	3.00	1.00	1.00	1.00	3.00	1.00	1.00	1.00	3.00	2.00
26.00	2.00	3.00	1.00	3.00	3.00	3.00	3.00	#NULL!	1.00	1.00	3.00	1.00	1.00	3.00	1.00	#NULL!
27.00	2.00	3.00	2.00	3.00	3.00	3.00	3.00	2.00	2.00	1.00	3.00	2.00	1.00	1.00	1.00	#NULL!
28.00	2.00	3.00	2.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	1.00	3.00	1.00	1.00	2.00
29.00	2.00	2.00	1.00	2.00	1.00	2.00	1.00	2.00	1.00	1.00	3.00	1.00	1.00	1.00	1.00	2.00
30.00	2.00	2.00	1.00	2.00	1.00	3.00	3.00	3.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	#NULL!
31.00	2.00	3.00	2.00	3.00	3.00	3.00	3.00	2.00	2.00	1.00	2.00	1.00	#NULL!	3.00	1.00	2.00
32.00	2.00	3.00	2.00	3.00	2.00	3.00	2.00	1.00	1.00	1.00	3.00	1.00	#NULL!	1.00	2.00	2.00
33.00	2.00	3.00	2.00	3.00	3.00	3.00	3.00	1.00	3.00	1.00	3.00	1.00	3.00	1.00	1.00	#NULL!
34.00	2.00	3.00	3.00	3.00	3.00	3.00	2.00	1.00	3.00	1.00	3.00	1.00	3.00	1.00	1.00	2.00
35.00	2.00	3.00	1.00	3.00	3.00	3.00	3.00	1.00	1.00	1.00	1.00	2.00	1.00	1.00	1.00	#NULL!
36.00	3.00	3.00	2.00	3.00	3.00	3.00	3.00	2.00	3.00	3.00	3.00	1.00	1.00	1.00	1.00	2.00
37.00	3.00	3.00	1.00	3.00	3.00	3.00	3.00	1.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00
38.00	3.00	3.00	2.00	3.00	3.00	3.00	2.00	2.00	3.00	1.00	2.00	1.00	2.00	3.00	2.00	2.00
39.00	3.00	3.00	2.00	3.00	3.00	3.00	3.00	1.00	2.00	1.00	2.00	1.00	#NULL!	1.00	1.00	2.00
40.00	3.00	3.00	2.00	3.00	3.00	3.00	2.00	1.00	3.00	2.00	1.00	1.00	#NULL!	1.00	2.00	2.00
41.00	3.00	3.00	1.00	3.00	2.00	3.00	1.00	1.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	#NULL!
42.00	3.00	3.00	1.00	2.00	2.00	2.00	2.00	1.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
43.00	3.00	3.00	1.00	3.00	3.00	3.00	2.00	1.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	#NULL!
44.00	3.00	3.00	2.00	3.00	3.00	2.00	2.00	1.00	2.00	1.00	2.00	1.00	1.00	2.00	2.00	#NULL!
45.00	3.00	3.00	2.00	1.00	3.00	3.00	2.00	2.00	3.00	1.00	1.00	1.00	#NULL!	3.00	3.00	#NULL!
46.00	3.00	3.00	1.00	3.00	2.00	3.00	2.00	2.00	3.00	3.00	2.00	1.00	1.00	1.00	1.00	2.00
47.00	3.00	3.00	2.00	2.00	3.00	3.00	3.00	1.00	3.00	2.00	2.00	1.00	1.00	1.00	2.00	1.00
48.00	3.00	3.00	2.00	2.00	3.00	3.00	3.00	1.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00
49.00	3.00	3.00	2.00	2.00	2.00	3.00	2.00	2.00	#NULL!	1.00	3.00	3.00	3.00	2.00	2.00	#NULL!
50.00	3.00	3.00	1.00	2.00	2.00	2.00	2.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	#NULL!
51.00	3.00	2.00	1.00	2.00	3.00	3.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00
52.00	3.00	3.00	1.00	1.00	2.00	2.00	3.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00
53.00	3.00	3.00	1.00	3.00	3.00	3.00	2.00	1.00	2.00	1.00	2.00	1.00	#NULL!	1.00	1.00	#NULL!
54.00	3.00	3.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	1.00	2.00	1.00	2.00	1.00	1.00	2.00
55.00	3.00	3.00	1.00	3.00	3.00	3.00	3.00	2.00	3.00	1.00	1.00	3.00	1.00	1.00	1.00	#NULL!
56.00	3.00	3.00	2.00	3.00	2.00	3.00	3.00	1.00	1.00	1.00	2.00	3.00	3.00	3.00	3.00	#NULL!
57.00	3.00	3.00	1.00	1.00	1.00	3.00	3.00	1.00	1.00	1.00	1.00	1.00	3.00	1.00	1.00	2.00
58.00	3.00	3.00	1.00	2.00	3.00	3.00	3.00	1.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00
59.00	3.00	3.00	1.00	2.00	2.00	2.00	2.00	1.00	1.00	1.00	2.00	1.00	1.00	1.00	1.00	#NULL!
60.00	3.00	1.00	1.00	2.00	3.00	3.00	2.00	1.00	3.00	3.00	1.00	1.00	3.00	1.00	2.00	3.00
61.00	3.00	3.00	1.00	3.00	3.00	3.00	3.00	2.00	3.00	2.00	3.00	1.00	2.00	2.00	3.00	2.00
62.00	4.00	3.00	3.00	2.00	2.00	1.00	3.00	1.00	1.00	1.00	3.00	1.00	1.00	1.00	2.00	3.00
63.00	4.00	3.00	3.00	3.00	3.00	3.00	3.00	2.00	3.00	2.00	2.00	1.00	3.00	1.00	2.00	2.00
64.00	4.00	3.00	2.00	3.00	3.00	3.00	2.00	3.00	3.00	3.00	3.00	1.00	3.00	1.00	2.00	2.00
65.00	4.00	3.00	2.00	3.00	3.00	3.00	3.00	2.00	3.00	3.00	3.00	1.00	3.00	2.00	3.00	2.00
66.00	4.00	3.00	3.00	2.00	3.00	3.00	3.00	2.00	3.00	3.00	3.00	1.00	3.00	2.00	2.00	2.00
67.00	4.00	3.00	3.00	3.00	3.00	3.00	1.00	2.00	3.00	1.00	3.00	1.00	#NULL!	1.00	2.00	2.00
68.00	4.00	3.00	3.00	3.00	3.00	3.00	3.00	2.00	3.00	1.00	3.00	1.00	3.00	3.00	3.00	#NULL!
69.00	4.00	3.00	2.00	2.00	2.00	2.00	2.00	2.00	3.00	2.00	3.00	1.00	2.00	3.00	3.00	2.00

## Appendix 18

	CENTER	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Q15	PROBLEM
70.00	4.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	1.00	3.00	1.00	3.00	1.00	3.00	2.00
71.00	4.00	3.00	3.00	2.00	3.00	2.00	3.00	3.00	3.00	1.00	1.00	3.00	1.00	1.00	3.00	3.00	2.00
72.00	4.00	3.00	3.00	3.00	2.00	3.00	2.00	1.00	3.00	1.00	2.00	3.00	2.00	1.00	1.00	3.00	#NULL!
73.00	4.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	2.00	3.00	3.00	1.00	1.00	1.00	1.00	2.00	2.00
74.00	4.00	3.00	2.00	3.00	3.00	2.00	3.00	1.00	2.00	2.00	1.00	3.00	3.00	#NULL!	2.00	3.00	2.00
75.00	4.00	3.00	2.00	3.00	1.00	3.00	3.00	2.00	3.00	3.00	1.00	3.00	1.00	1.00	2.00	3.00	2.00
76.00	4.00	3.00	2.00	3.00	3.00	3.00	3.00	3.00	2.00	3.00	3.00	3.00	1.00	#NULL!	2.00	3.00	#NULL!
77.00	4.00	3.00	2.00	3.00	3.00	3.00	3.00	1.00	1.00	2.00	1.00	3.00	1.00	3.00	1.00	3.00	2.00
78.00	4.00	3.00	2.00	2.00	3.00	3.00	2.00	1.00	2.00	1.00	1.00	2.00	1.00	1.00	2.00	3.00	#NULL!
79.00	5.00	3.00	2.00	3.00	3.00	#NULL!	3.00	3.00	2.00	2.00	2.00	2.00	1.00	3.00	1.00	2.00	#NULL!
80.00	5.00	3.00	2.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	1.00	1.00	3.00	1.00	1.00	1.00	#NULL!
81.00	5.00	3.00	3.00	3.00	2.00	3.00	3.00	3.00	2.00	3.00	3.00	3.00	1.00	1.00	1.00	1.00	#NULL!
82.00	5.00	3.00	2.00	3.00	2.00	2.00	3.00	1.00	1.00	3.00	1.00	2.00	1.00	1.00	2.00	2.00	2.00
83.00	5.00	3.00	3.00	3.00	1.00	3.00	3.00	3.00	1.00	3.00	1.00	3.00	1.00	1.00	1.00	1.00	#NULL!
84.00	5.00	3.00	3.00	3.00	3.00	3.00	3.00	2.00	3.00	3.00	2.00	2.00	1.00	#NULL!	3.00	3.00	#NULL!
85.00	5.00	3.00	2.00	3.00	1.00	3.00	2.00	3.00	2.00	2.00	1.00	1.00	1.00	1.00	2.00	1.00	2.00
86.00	5.00	2.00	1.00	3.00	1.00	3.00	2.00	3.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00
87.00	5.00	2.00	1.00	2.00	1.00	3.00	2.00	3.00	1.00	3.00	1.00	1.00	1.00	1.00	1.00	1.00	#NULL!
88.00	5.00	3.00	2.00	3.00	3.00	3.00	3.00	1.00	1.00	3.00	1.00	3.00	1.00	1.00	1.00	1.00	2.00
89.00	5.00	3.00	2.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	1.00	1.00	1.00	2.00	1.00	1.00	2.00
90.00	5.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	1.00	3.00	1.00	1.00	2.00
91.00	5.00	3.00	2.00	2.00	3.00	3.00	2.00	3.00	1.00	2.00	1.00	1.00	1.00	1.00	1.00	3.00	#NULL!
92.00	5.00	3.00	1.00	1.00	2.00	1.00	1.00	1.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00
93.00	5.00	3.00	2.00	3.00	3.00	3.00	1.00	3.00	1.00	2.00	1.00	1.00	1.00	#NULL!	1.00	1.00	2.00
94.00	5.00	3.00	1.00	3.00	3.00	2.00	3.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	#NULL!
95.00	6.00	3.00	2.00	3.00	3.00	3.00	3.00	2.00	1.00	3.00	1.00	2.00	1.00	3.00	2.00	3.00	1.00
96.00	6.00	3.00	2.00	3.00	3.00	3.00	3.00	1.00	1.00	1.00	1.00	2.00	1.00	1.00	1.00	3.00	#NULL!
97.00	6.00	3.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	#NULL!
98.00	6.00	2.00	1.00	1.00	2.00	3.00	3.00	3.00	1.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	#NULL!
99.00	7.00	2.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	1.00	1.00	3.00	1.00	3.00	1.00	1.00	2.00
100.00	7.00	3.00	3.00	3.00	3.00	3.00	3.00	1.00	3.00	3.00	2.00	3.00	3.00	3.00	3.00	3.00	#NULL!
101.00	7.00	3.00	2.00	3.00	3.00	3.00	3.00	1.00	3.00	3.00	1.00	3.00	3.00	3.00	3.00	3.00	#NULL!
102.00	7.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	2.00	3.00	1.00	1.00	1.00	3.00	#NULL!
103.00	7.00	2.00	2.00	3.00	2.00	2.00	2.00	3.00	2.00	2.00	1.00	3.00	3.00	3.00	2.00	3.00	2.00
104.00	7.00	3.00	3.00	3.00	3.00	3.00	3.00	1.00	3.00	3.00	2.00	3.00	1.00	1.00	1.00	1.00	2.00
105.00	7.00	3.00	3.00	3.00	3.00	3.00	3.00	1.00	2.00	2.00	#NULL!	2.00	1.00	#NULL!	1.00	1.00	#NULL!
106.00	7.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	1.00	3.00	1.00	1.00	3.00	1.00	3.00	#NULL!
107.00	7.00	3.00	2.00	3.00	3.00	3.00	2.00	3.00	2.00	2.00	1.00	3.00	1.00	#NULL!	3.00	1.00	#NULL!
108.00	7.00	3.00	3.00	3.00	3.00	3.00	3.00	1.00	3.00	3.00	2.00	3.00	1.00	3.00	2.00	1.00	#NULL!
109.00	7.00	3.00	2.00	3.00	3.00	3.00	3.00	3.00	2.00	2.00	1.00	3.00	1.00	3.00	1.00	1.00	2.00
110.00	7.00	3.00	2.00	3.00	3.00	3.00	3.00	1.00	2.00	3.00	1.00	3.00	3.00	1.00	1.00	1.00	2.00
111.00	7.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	#NULL!	3.00	3.00	3.00	1.00	3.00	3.00	3.00	2.00
112.00	7.00	2.00	3.00	3.00	3.00	2.00	3.00	2.00	3.00	1.00	1.00	3.00	2.00	1.00	1.00	1.00	2.00
113.00	7.00	3.00	2.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	1.00	3.00	1.00	1.00	2.00	3.00	2.00
114.00	7.00	3.00	3.00	3.00	#NULL!	3.00	3.00	3.00	3.00	3.00	1.00	3.00	2.00	3.00	2.00	1.00	2.00
115.00	7.00	3.00	3.00	3.00	3.00	3.00	3.00	1.00	3.00	3.00	1.00	2.00	1.00	1.00	1.00	1.00	2.00
116.00	7.00	3.00	3.00	3.00	3.00	3.00	3.00	1.00	3.00	2.00	1.00	1.00	1.00	#NULL!	1.00	2.00	2.00
117.00	8.00	3.00	1.00	1.00	1.00	1.00	1.00	3.00	1.00	1.00	#NULL!	1.00	1.00	1.00	1.00	1.00	3.00
118.00	8.00	3.00	1.00	2.00	1.00	3.00	3.00	3.00	1.00	1.00	1.00	1.00	1.00	#NULL!	2.00	1.00	2.00
119.00	8.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	2.00	2.00	1.00	3.00	1.00	3.00	1.00	2.00	2.00
120.00	8.00	3.00	2.00	3.00	#NULL!	3.00	3.00	2.00	2.00	2.00	1.00	3.00	1.00	1.00	3.00	3.00	2.00
121.00	8.00	3.00	3.00	3.00	2.00	3.00	3.00	2.00	2.00	2.00	1.00	3.00	1.00	1.00	1.00	2.00	#NULL!
122.00	8.00	3.00	1.00	1.00	3.00	2.00	3.00	2.00	1.00	1.00	1.00	3.00	1.00	1.00	1.00	1.00	2.00
123.00	8.00	3.00	2.00	3.00	3.00	3.00	3.00	3.00	2.00	2.00	1.00	2.00	1.00	1.00	1.00	2.00	#NULL!
124.00	8.00	3.00	2.00	3.00	3.00	3.00	3.00	3.00	2.00	2.00	1.00	2.00	1.00	1.00	2.00	2.00	2.00
125.00	8.00	3.00	2.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	1.00	1.00	1.00	1.00	1.00	1.00	#NULL!
126.00	8.00	3.00	2.00	3.00	1.00	3.00	3.00	3.00	1.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	3.00
127.00	8.00	3.00	2.00	3.00	3.00	2.00	3.00	3.00	3.00	1.00	1.00	3.00	1.00	1.00	2.00	3.00	2.00
128.00	8.00	3.00	2.00	#NULL!	3.00	2.00	3.00	3.00	3.00	2.00	1.00	2.00	1.00	1.00	1.00	1.00	#NULL!
129.00	9.00	3.00	1.00	3.00	3.00	3.00	3.00	3.00	3.00	2.00	1.00	2.00	1.00	1.00	1.00	1.00	#NULL!
130.00	9.00	3.00	2.00	3.00	3.00	3.00	3.00	3.00	2.00	1.00	3.00	1.00	1.00	3.00	1.00	1.00	#NULL!
131.00	9.00	3.00	1.00	3.00	3.00	3.00	3.00	3.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	#NULL!
132.00	9.00	3.00	3.00	3.00	3.00	3.00	3.00	2.00	2.00	2.00	3.00	3.00	1.00	#NULL!	3.00	3.00	2.00
133.00	9.00	3.00	2.00	3.00	3.00	3.00	3.00	#NULL!	1.00	3.00	2.00	1.00	1.00	1.00	1.00	3.00	#NULL!
134.00	9.00	3.00	2.00	3.00	3.00	3.00	3.00	3.00	1.00	2.00	1.00	3.00	1.00	#NULL!	1.00	1.00	#NULL!
135.00	9.00	3.00	2.00	3.00	1.00	3.00	3.00	3.00	1.00	3.00	1.00	2.00	1.00	1.00	1.00	1.00	#NULL!
136.00	9.00	3.00	2.00	3.00	1.00	3.00	3.00	3.00	1.00	3.00	3.00	#NULL!	1.00	1.00	1.00	1.00	#NULL!
137.00	10.00	2.00	1.00	2.00	2.00	2.00	2.00	3.00	1.00	1.00	1.00	1.00	1.00	#NULL!	1.00	1.00	2.00
138.00	10.00	2.00	1.00	2.00	2.00	2.00	2.00	3.00	1.00	1.00	1.00	1.00	1.00	#NULL!	1.00	1.00	#NULL!

Appendix18	CENTER	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Q15	PROBLEM
139.00	10.00	3.00	2.00	3.00	3.00	3.00	3.00	3.00	2.00	3.00	1.00	2.00	1.00	1.00	1.00	1.00	#NULL!
140.00	10.00	3.00	2.00	3.00	3.00	3.00	3.00	1.00	2.00	3.00	1.00	3.00	1.00	1.00	1.00	1.00	#NULL!
141.00	10.00	3.00	2.00	3.00	3.00	2.00	3.00	1.00	1.00	1.00	3.00	1.00	1.00	1.00	1.00	1.00	#NULL!
142.00	10.00	3.00	1.00	3.00	2.00	3.00	2.00	1.00	1.00	1.00	2.00	1.00	1.00	1.00	1.00	1.00	#NULL!
143.00	10.00	3.00	1.00	2.00	3.00	3.00	2.00	1.00	1.00	1.00	3.00	1.00	1.00	1.00	1.00	1.00	3.00
144.00	10.00	3.00	2.00	3.00	3.00	3.00	3.00	2.00	2.00	3.00	2.00	3.00	1.00	3.00	2.00	2.00	#NULL!
145.00	10.00	3.00	2.00	3.00	3.00	3.00	3.00	3.00	3.00	2.00	1.00	1.00	1.00	1.00	1.00	2.00	#NULL!
146.00	10.00	3.00	1.00	3.00	3.00	2.00	3.00	2.00	1.00	1.00	1.00	2.00	1.00	1.00	1.00	1.00	2.00
147.00	10.00	3.00	3.00	3.00	3.00	3.00	3.00	2.00	1.00	3.00	1.00	1.00	1.00	1.00	1.00	1.00	#NULL!
148.00	10.00	2.00	2.00	1.00	3.00	3.00	3.00	3.00	1.00	1.00	1.00	3.00	1.00	3.00	1.00	3.00	#NULL!
149.00	10.00	3.00	3.00	3.00	3.00	3.00	3.00	2.00	1.00	3.00	1.00	1.00	1.00	1.00	1.00	1.00	#NULL!
150.00	10.00	3.00	1.00	3.00	3.00	2.00	2.00	3.00	3.00	1.00	1.00	1.00	1.00	1.00	2.00	1.00	#NULL!
151.00	10.00	3.00	2.00	3.00	2.00	3.00	3.00	2.00	2.00	2.00	1.00	1.00	1.00	#NULL!	1.00	1.00	#NULL!
152.00	10.00	3.00	2.00	2.00	3.00	3.00	3.00	3.00	2.00	2.00	1.00	1.00	1.00	#NULL!	2.00	3.00	3.00
153.00	10.00	2.00	1.00	2.00	3.00	3.00	2.00	3.00	1.00	2.00	1.00	2.00	1.00	3.00	1.00	1.00	#NULL!
154.00	10.00	3.00	2.00	3.00	3.00	3.00	3.00	3.00	2.00	3.00	3.00	3.00	1.00	1.00	2.00	2.00	2.00
155.00	10.00	3.00	2.00	1.00	3.00	3.00	3.00	3.00	1.00	3.00	1.00	1.00	1.00	3.00	1.00	1.00	2.00
156.00	10.00	3.00	2.00	3.00	3.00	3.00	3.00	3.00	2.00	3.00	1.00	1.00	1.00	3.00	1.00	1.00	2.00
157.00	10.00	3.00	1.00	2.00	3.00	2.00	3.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00
158.00	10.00	3.00	1.00	3.00	3.00	3.00	3.00	3.00	1.00	3.00	1.00	1.00	1.00	1.00	1.00	###	#NULL!
159.00	10.00	3.00	1.00	3.00	3.00	3.00	2.00	3.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
160.00	10.00	3.00	2.00	3.00	3.00	3.00	3.00	3.00	1.00	3.00	1.00	1.00	1.00	1.00	1.00	1.00	#NULL!
161.00	10.00	3.00	2.00	1.00	3.00	3.00	3.00	3.00	1.00	3.00	1.00	1.00	1.00	3.00	1.00	1.00	2.00
162.00	10.00	3.00	1.00	2.00	1.00	3.00	2.00	1.00	1.00	1.00	1.00	3.00	1.00	#NULL!	1.00	1.00	#NULL!
163.00	11.00	2.00	1.00	2.00	3.00	3.00	2.00	3.00	1.00	1.00	3.00	1.00	1.00	1.00	1.00	1.00	2.00
164.00	11.00	3.00	1.00	3.00	3.00	3.00	3.00	1.00	2.00	3.00	1.00	3.00	1.00	3.00	3.00	3.00	#NULL!
165.00	11.00	3.00	2.00	3.00	3.00	2.00	2.00	3.00	1.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	#NULL!
166.00	11.00	2.00	2.00	2.00	3.00	2.00	2.00	#NULL!	2.00	2.00	2.00	2.00	1.00	#NULL!	2.00	2.00	2.00
167.00	11.00	3.00	2.00	3.00	3.00	3.00	3.00	1.00	2.00	3.00	3.00	#NULL!	1.00	1.00	3.00	3.00	1.00
168.00	11.00	3.00	2.00	2.00	3.00	2.00	2.00	3.00	2.00	3.00	1.00	2.00	1.00	1.00	2.00	3.00	2.00
169.00	11.00	3.00	2.00	3.00	3.00	2.00	3.00	3.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	#NULL!
170.00	11.00	3.00	3.00	#NULL!	3.00	3.00	2.00	3.00	1.00	3.00	1.00	1.00	1.00	#NULL!	1.00	1.00	3.00
171.00	11.00	3.00	1.00	2.00	1.00	3.00	3.00	1.00	2.00	2.00	1.00	3.00	1.00	1.00	1.00	1.00	2.00
172.00	11.00	2.00	1.00	3.00	3.00	3.00	2.00	3.00	1.00	3.00	1.00	3.00	1.00	1.00	1.00	1.00	2.00
173.00	11.00	3.00	2.00	2.00	3.00	3.00	3.00	3.00	1.00	3.00	1.00	3.00	1.00	1.00	2.00	3.00	#NULL!
174.00	11.00	3.00	2.00	3.00	3.00	3.00	3.00	1.00	1.00	3.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00
175.00	11.00	3.00	1.00	2.00	3.00	3.00	3.00	1.00	1.00	1.00	1.00	2.00	1.00	1.00	1.00	2.00	#NULL!
176.00	11.00	3.00	1.00	2.00	3.00	2.00	3.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	#NULL!
177.00	11.00	3.00	1.00	3.00	3.00	3.00	3.00	1.00	1.00	3.00	1.00	#NULL!	1.00	#NULL!	1.00	1.00	#NULL!
178.00	11.00	3.00	2.00	2.00	2.00	3.00	2.00	3.00	1.00	2.00	1.00	1.00	1.00	3.00	2.00	1.00	2.00
179.00	11.00	3.00	2.00	3.00	2.00	3.00	3.00	1.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	3.00	2.00
180.00	11.00	3.00	3.00	2.00	3.00	3.00	2.00	3.00	1.00	3.00	1.00	1.00	1.00	1.00	1.00	1.00	#NULL!
181.00	11.00	3.00	2.00	2.00	3.00	3.00	3.00	1.00	1.00	2.00	1.00	3.00	1.00	1.00	1.00	3.00	#NULL!
182.00	11.00	3.00	2.00	3.00	3.00	3.00	3.00	1.00	1.00	3.00	1.00	3.00	1.00	1.00	1.00	1.00	2.00
183.00	11.00	3.00	2.00	2.00	3.00	3.00	3.00	3.00	2.00	3.00	1.00	3.00	1.00	1.00	3.00	3.00	#NULL!
184.00	11.00	3.00	1.00	3.00	1.00	3.00	3.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	#NULL!
185.00	11.00	3.00	2.00	3.00	3.00	3.00	3.00	3.00	2.00	3.00	1.00	1.00	1.00	1.00	1.00	1.00	#NULL!
186.00	11.00	3.00	2.00	3.00	3.00	3.00	3.00	2.00	1.00	2.00	3.00	3.00	1.00	3.00	3.00	1.00	2.00
187.00	11.00	3.00	2.00	3.00	3.00	3.00	3.00	3.00	1.00	3.00	1.00	1.00	1.00	#NULL!	1.00	1.00	2.00
188.00	11.00	3.00	2.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	1.00	2.00	1.00	3.00	1.00	1.00	2.00
189.00	11.00	3.00	3.00	3.00	1.00	3.00	3.00	1.00	2.00	3.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00
190.00	11.00	3.00	1.00	2.00	3.00	2.00	3.00	3.00	1.00	1.00	3.00	3.00	1.00	1.00	1.00	1.00	#NULL!
191.00	11.00	3.00	1.00	2.00	3.00	3.00	3.00	1.00	1.00	2.00	1.00	2.00	1.00	1.00	1.00	1.00	#NULL!
192.00	8.00	3.00	2.00	3.00	3.00	3.00	3.00	3.00	2.00	3.00	1.00	3.00	1.00	1.00	1.00	1.00	#NULL!
193.00	8.00	3.00	2.00	3.00	2.00	2.00	2.00	3.00	2.00	2.00	1.00	1.00	1.00	#NULL!	####	3.00	#NULL!
194.00	2.00	3.00	1.00	2.00	3.00	3.00	3.00	3.00	1.00	3.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00
195.00	3.00	3.00	2.00	3.00	3.00	3.00	3.00	3.00	2.00	3.00	1.00	3.00	1.00	1.00	1.00	1.00	2.00
196.00	3.00	3.00	1.00	3.00	3.00	3.00	3.00	3.00	1.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00
197.00	3.00	3.00	2.00	3.00	3.00	3.00	3.00	3.00	2.00	3.00	1.00	1.00	1.00	2.00	3.00	2.00	2.00
198.00	3.00	3.00	2.00	2.00	3.00	3.00	3.00	3.00	2.00	3.00	1.00	2.00	1.00	3.00	3.00	2.00	#NULL!
199.00	3.00	3.00	1.00	2.00	3.00	3.00	3.00	3.00	1.00	2.00	1.00	1.00	1.00	3.00	3.00	2.00	#NULL!
200.00	7.00	3.00	2.00	3.00	3.00	3.00	3.00	3.00	2.00	2.00	1.00	3.00	1.00	#NULL!	3.00	1.00	#NULL!
201.00	7.00	3.00	3.00	3.00	3.00	3.00	3.00	1.00	3.00	2.00	1.00	3.00	1.00	3.00	2.00	1.00	#NULL!
202.00	7.00	3.00	2.00	3.00	3.00	3.00	3.00	1.00	2.00	3.00	1.00	3.00	3.00	1.00	1.00	1.00	2.00



[illegible]



SEX	COUNTRY	AGE	EDUC	OCCUP	CHILD	LOCAT	RQ1	RQ2	RQ3	RQ4	RQ5	RQ6	RQ7	RQ8	RQ9	RQ10	RQ11
1.00	1.00	2.00	3.00	5.00	4.00	3.00	.00	1.00	.00	.00	.00	.00	.00	1.00	.00	1.00	1.00
2.00	1.00	2.00	2.00	1.00	3.00	1.00	.00	1.00	.00	.00	.00	.00	1.00	1.00	.00	1.00	.00
2.00	2.00	3.00	3.00	2.00	2.00	1.00	.00	1.00	.00	.00	1.00	.00	1.00	1.00	.00	1.00	1.00
2.00	1.00	2.00	3.00	2.00	7.00	3.00	.00	1.00	.00	1.00	1.00	.00	1.00	1.00	1.00	1.00	1.00
2.00	1.00	3.00	3.00	2.00	4.00	2.00	.00	1.00	1.00	.00	.00	1.00	1.00	1.00	1.00	.00	1.00
2.00	1.00	2.00	3.00	1.00	4.00	3.00	.00	1.00	.00	.00	.00	.00	1.00	1.00	.00	1.00	.00
2.00	1.00	2.00	2.00	1.00	4.00	3.00	.00	1.00	.00	.00	.00	.00	.00	.00	1.00	1.00	1.00
2.00	1.00	2.00	3.00	2.00	3.00	3.00	.00	1.00	.00	.00	1.00	.00	1.00	1.00	1.00	1.00	1.00
2.00	4.00	2.00	3.00	2.00	4.00	3.00	1.00	1.00	1.00	.00	.00	.00	.00	1.00	1.00	1.00	.00
2.00	1.00	2.00	3.00	2.00	3.00	3.00	.00	.00	.00	.00	.00	.00	1.00	1.00	.00	1.00	1.00
2.00	1.00	2.00	2.00	1.00	2.00	1.00	.00	1.00	.00	.00	1.00	1.00	.00	.00	.00	1.00	.00
2.00	1.00	2.00	2.00	1.00	2.00	1.00	.00	1.00	.00	1.00	.00	.00	1.00	1.00	1.00	1.00	1.00
2.00	1.00	2.00	3.00	2.00	2.00	2.00	.00	1.00	1.00	.00	.00	1.00	.00	1.00	1.00	1.00	1.00
1.00	1.00	2.00	3.00	2.00	4.00	3.00	.00	1.00	.00	.00	.00	.00	.00	1.00	.00	.00	.00
2.00	1.00	2.00	3.00	4.00	2.00	1.00	.00	1.00	1.00	1.00	.00	.00	.00	1.00	1.00	1.00	1.00
1.00	1.00	2.00	3.00	2.00	4.00	3.00	.00	1.00	1.00	.00	.00	.00	.00	1.00	.00	.00	.00
2.00	1.00	2.00	3.00	2.00	3.00	2.00	.00	1.00	1.00	.00	1.00	.00	1.00	1.00	1.00	1.00	1.00
1.00	1.00	3.00	3.00	1.00	2.00	1.00	.00	1.00	.00	.00	.00	.00	.00	1.00	.00	1.00	1.00
2.00	#NULL!	2.00	3.00	4.00	2.00	2.00	.00	1.00	1.00	.00	.00	.00	.00	1.00	.00	1.00	1.00
2.00	1.00	2.00	3.00	2.00	2.00	1.00	.00	1.00	1.00	1.00	.00	1.00	1.00	1.00	1.00	1.00	.00
2.00	1.00	2.00	3.00	2.00	4.00	2.00	1.00	1.00	1.00	.00	.00	.00	.00	1.00	.00	.00	.00
2.00	1.00	2.00	3.00	2.00	5.00	3.00	.00	1.00	.00	.00	.00	.00	1.00	1.00	.00	1.00	.00
1.00	3.00	2.00	3.00	4.00	2.00	2.00	.00	1.00	.00	.00	.00	.00	.00	1.00	1.00	1.00	1.00
1.00	4.00	4.00	3.00	2.00	6.00	3.00	1.00	1.00	1.00	.00	1.00	1.00	#NULL!	1.00	1.00	1.00	1.00
2.00	4.00	2.00	2.00	5.00	3.00	2.00	.00	1.00	.00	.00	.00	.00	1.00	1.00	.00	.00	#NULL!
2.00	1.00	3.00	3.00	5.00	3.00	2.00	.00	1.00	1.00	.00	1.00	.00	1.00	1.00	1.00	1.00	1.00
1.00	#NULL!	2.00	2.00	5.00	3.00	3.00	.00	1.00	.00	.00	.00	.00	.00	1.00	1.00	.00	1.00
2.00	3.00	2.00	3.00	2.00	2.00	1.00	.00	1.00	#NULL!	.00	.00	1.00	.00	1.00	.00	#NULL!	1.00
#NULL!	1.00	3.00	3.00	2.00	7.00	2.00	.00	1.00	1.00	1.00	.00	.00	1.00	1.00	1.00	1.00	.00
2.00	13.00	3.00	3.00	2.00	7.00	3.00	1.00	1.00	.00	.00	.00	1.00	.00	1.00	1.00	1.00	.00
2.00	1.00	2.00	2.00	1.00	1.00	1.00	.00	1.00	1.00	.00	.00	.00	.00	1.00	.00	1.00	.00
2.00	1.00	3.00	2.00	1.00	5.00	3.00	.00	1.00	.00	.00	.00	.00	1.00	1.00	.00	1.00	1.00
2.00	4.00	2.00	3.00	1.00	6.00	3.00	.00	1.00	1.00	.00	.00	.00	1.00	1.00	1.00	1.00	1.00
2.00	1.00	1.00	2.00	1.00	2.00	1.00	.00	1.00	1.00	.00	.00	.00	1.00	1.00	1.00	1.00	1.00
2.00	1.00	2.00	2.00	1.00	4.00	3.00	.00	1.00	.00	.00	.00	.00	1.00	1.00	1.00	1.00	1.00
1.00	1.00	2.00	2.00	1.00	4.00	1.00	.00	1.00	1.00	1.00	.00	1.00	.00	1.00	1.00	1.00	1.00
2.00	1.00	2.00	2.00	1.00	5.00	3.00	.00	1.00	.00	1.00	.00	.00	1.00	1.00	1.00	1.00	1.00
1.00	4.00	3.00	3.00	8.00	6.00	3.00	.00	1.00	1.00	.00	.00	.00	1.00	1.00	1.00	1.00	.00
2.00	#NULL!	2.00	3.00	4.00	2.00	1.00	.00	1.00	1.00	.00	.00	.00	1.00	1.00	1.00	1.00	.00
2.00	1.00	3.00	3.00	2.00	1.00	1.00	.00	1.00	1.00	.00	.00	.00	1.00	1.00	1.00	1.00	.00
2.00	1.00	2.00	2.00	1.00	3.00	1.00	.00	1.00	.00	1.00	.00	.00	1.00	1.00	1.00	1.00	1.00
2.00	13.00	2.00	3.00	5.00	7.00	3.00	.00	1.00	.00	.00	.00	.00	1.00	1.00	1.00	1.00	1.00
2.00	13.00	3.00	3.00	5.00	4.00	3.00	.00	1.00	.00	.00	.00	.00	1.00	1.00	1.00	1.00	1.00
2.00	1.00	2.00	2.00	1.00	6.00	2.00	.00	1.00	.00	.00	.00	.00	1.00	1.00	1.00	1.00	1.00
2.00	#NULL!	2.00	2.00	1.00	4.00	3.00	.00	1.00	.00	.00	.00	.00	1.00	1.00	1.00	1.00	1.00
2.00	1.00	2.00	2.00	5.00	6.00	3.00	.00	.00	.00	1.00	.00	.00	1.00	1.00	1.00	1.00	1.00
2.00	1.00	2.00	3.00	2.00	3.00	3.00	.00	1.00	1.00	.00	.00	.00	1.00	1.00	1.00	1.00	1.00
1.00	1.00	3.00	3.00	1.00	3.00	3.00	.00	1.00	.00	1.00	.00	.00	1.00	1.00	1.00	1.00	1.00
#NULL!	6.00	2.00	3.00	5.00	2.00	2.00	.00	1.00	.00	.00	.00	.00	1.00	1.00	.00	#NULL!	.00
2.00	1.00	2.00	3.00	2.00	2.00	2.00	.00	1.00	.00	.00	.00	.00	1.00	1.00	1.00	1.00	1.00
2.00	1.00	3.00	3.00	2.00	3.00	3.00	.00	1.00	.00	.00	.00	.00	1.00	1.00	1.00	1.00	1.00
1.00	1.00	2.00	2.00	8.00	3.00	3.00	.00	1.00	1.00	.00	1.00	.00	1.00	1.00	1.00	1.00	1.00
2.00	1.00	2.00	2.00	4.00	3.00	3.00	.00	1.00	1.00	.00	1.00	.00	1.00	1.00	1.00	1.00	#NULL!
2.00	#NULL!	3.00	2.00	1.00	4.00	3.00	.00	1.00	.00	.00	.00	1.00	1.00	1.00	1.00	1.00	.00
1.00	1.00	2.00	2.00	5.00	4.00	3.00	.00	.00	.00	.00	.00	.00	1.00	1.00	.00	1.00	.00
2.00	1.00	2.00	3.00	2.00	4.00	3.00	.00	1.00	.00	.00	.00	.00	1.00	1.00	1.00	1.00	1.00



[illegible]

R012	R013	R014	R015	F1	F2	F3	F4	F5	P0F2	P0F3	P0F4	P0F5	P0F1
1.00	1.00	1.00	1.00	4.00	.00	2.00	.00	2.00	.00	66.67	.00	100.00	100.00
1.00	1.00	1.00	1.00	3.00	.00	2.00	1.00	2.00	.00	66.67	33.33	100.00	75.00
1.00	1.00	1.00	1.00	4.00	2.00	2.00	1.00	1.00	66.67	66.67	33.33	50.00	100.00
1.00	1.00	1.00	1.00	4.00	3.00	2.00	1.00	2.00	100.00	66.67	33.33	100.00	100.00
1.00	1.00	1.00	1.00	4.00	1.00	3.00	2.00	1.00	33.33	100.00	66.67	50.00	100.00
1.00	1.00	1.00	1.00	2.00	.00	2.00	1.00	2.00	.00	66.67	33.33	100.00	50.00
1.00	1.00	1.00	1.00	4.00	1.00	1.00	.00	2.00	33.33	33.33	.00	100.00	100.00
1.00	1.00	1.00	1.00	4.00	2.00	2.00	1.00	2.00	66.67	66.67	33.33	50.00	100.00
1.00	1.00	1.00	1.00	4.00	.00	2.00	1.00	1.00	.00	66.67	33.33	50.00	100.00
1.00	1.00	1.00	1.00	3.00	.00	3.00	.00	1.00	.00	66.67	.00	50.00	75.00
1.00	1.00	1.00	1.00	3.00	.00	2.00	.00	2.00	.00	100.00	.00	100.00	100.00
1.00	1.00	1.00	1.00	4.00	1.00	2.00	1.00	2.00	66.67	100.00	66.67	100.00	75.00
1.00	1.00	1.00	1.00	3.00	.00	2.00	.00	1.00	.00	66.67	.00	50.00	75.00
1.00	1.00	1.00	1.00	4.00	2.00	3.00	1.00	2.00	33.33	100.00	66.67	100.00	100.00
1.00	1.00	1.00	1.00	4.00	1.00	2.00	1.00	2.00	66.67	100.00	66.67	100.00	100.00
1.00	1.00	1.00	1.00	4.00	.00	2.00	.00	2.00	.00	66.67	.00	100.00	75.00
1.00	1.00	1.00	1.00	3.00	.00	3.00	.00	1.00	.00	66.67	.00	100.00	75.00
1.00	1.00	1.00	1.00	4.00	1.00	2.00	1.00	2.00	33.33	100.00	66.67	100.00	100.00
1.00	1.00	1.00	1.00	4.00	2.00	3.00	1.00	2.00	66.67	100.00	66.67	100.00	100.00
1.00	1.00	1.00	1.00	4.00	.00	2.00	.00	2.00	.00	66.67	.00	100.00	75.00
1.00	1.00	1.00	1.00	3.00	.00	2.00	1.00	2.00	66.67	100.00	66.67	100.00	100.00
1.00	1.00	1.00	1.00	4.00	1.00	2.00	1.00	2.00	33.33	100.00	66.67	100.00	100.00
1.00	1.00	1.00	1.00	4.00	2.00	3.00	1.00	2.00	66.67	100.00	66.67	100.00	100.00
1.00	1.00	1.00	1.00	4.00	.00	2.00	.00	2.00	.00	66.67	.00	100.00	75.00
1.00	1.00	1.00	1.00	3.00	.00	3.00	.00	1.00	.00	66.67	.00	100.00	75.00
1.00	1.00	1.00	1.00	4.00	1.00	2.00	1.00	2.00	33.33	100.00	66.67	100.00	100.00
1.00	1.00	1.00	1.00	4.00	2.00	3.00	1.00	2.00	66.67	100.00	66.67	100.00	100.00
1.00	1.00	1.00	1.00	4.00	.00	2.00	.00	2.00	.00	66.67	.00	100.00	75.00
1.00	1.00	1.00	1.00	3.00	.00	2.00	1.00	2.00	66.67	100.00	66.67	100.00	100.00
1.00	1.00	1.00	1.00	4.00	1.00	2.00	1.00	2.00	33.33	100.00	66.67	100.00	100.00
1.00	1.00	1.00	1.00	4.00	2.00	3.00	1.00	2.00	66.67	100.00	66.67	100.00	100.00
1.00	1.00	1.00	1.00	4.00	.00	2.00	.00	2.00	.00	66.67	.00	100.00	75.00
1.00	1.00	1.00	1.00	3.00	.00	3.00	.00	1.00	.00	66.67	.00	100.00	75.00
1.00	1.00	1.00	1.00	4.00	1.00	2.00	1.00	2.00	33.33	100.00	66.67	100.00	100.00
1.00	1.00	1.00	1.00	4.00	2.00	3.00	1.00	2.00	66.67	100.00	66.67	100.00	100.00
1.00	1.00	1.00	1.00	4.00	.00	2.00	.00	2.00	.00	66.67	.00	100.00	75.00
1.00	1.00	1.00	1.00	3.00	.00	2.00	1.00	2.00	66.67	100.00	66.67	100.00	100.00
1.00	1.00	1.00	1.00	4.00	1.00	2.00	1.00	2.00	33.33	100.00	66.67	100.00	100.00
1.00	1.00	1.00	1.00	4.00	2.00	3.00	1.00	2.00	66.67	100.00	66.67	100.00	100.00
1.00	1.00	1.00	1.00	4.00	.00	2.00	.00	2.00	.00	66.67	.00	100.00	75.00
1.00	1.00	1.00	1.00	3.00	.00	2.00	1.00	2.00	66.67	100.00	66.67	100.00	100.00
1.00	1.00	1.00	1.00	4.00	1.00	2.00	1.00	2.00	33.33	100.00	66.67	100.00	100.00
1.00	1.00	1.00	1.00	4.00	2.00	3.00	1.00	2.00	66.67	100.00	66.67	100.00	100.00
1.00	1.00	1.00	1.00	4.00	.00	2.00	.00	2.00	.00	66.67	.00	100.00	75.00
1.00	1.00	1.00	1.00	3.00	.00	2.00	1.00	2.00	66.67	100.00	66.67	100.00	100.00
1.00	1.00	1.00	1.00	4.00	1.00	2.00	1.00	2.00	33.33	100.00	66.67	100.00	100.00
1.00	1.00	1.00	1.00	4.00	2.00	3.00	1.00	2.00	66.67	100.00	66.67	100.00	100.00
1.00	1.00	1.00	1.00	4.00	.00	2.00	.00	2.00	.00	66.67	.00	100.00	75.00
1.00	1.00	1.00	1.00	3.00	.00	2.00	1.00	2.00	66.67	100.00	66.67	100.00	100.00
1.00	1.00	1.00	1.00	4.00	1.00	2.00	1.00	2.00	33.33	100.00	66.67	100.00	100.00
1.00	1.00	1.00	1.00	4.00	2.00	3.00	1.00	2.00	66.67	100.00	66.67	100.00	100.00
1.00	1.00	1.00	1.00	4.00	.00	2.00	.00	2.00	.00	66.67	.00	100.00	75.00
1.00	1.00	1.00	1.00	3.00	.00	2.00	1.00	2.00	66.67	100.00	66.67	100.00	100.00
1.00	1.00	1.00	1.00	4.00	1.00	2.00	1.00	2.00	33.33	100.00	66.67	100.00	100.00
1.00	1.00	1.00	1.00	4.00	2.00	3.00	1.00	2.00	66.67	100.00	66.67	100.00	100.00
1.00	1.00	1.00	1.00	4.00	.00	2.00	.00	2.00	.00	66.67	.00	100.00	75.00
1.00	1.00	1.00	1.00	3.00	.00	2.00	1.00	2.00	66.67	100.00	66.67	100.00	100.00
1.00	1.00	1.00	1.00	4.00	1.00	2.00	1.00	2.00	33.33	100.00	66.67	100.00	100.00
1.00	1.00	1.00	1.00	4.00	2.00	3.00	1.00	2.00	66.67	100.00	66.67	100.00	100.00
1.00	1.00	1.00	1.00	4.00	.00	2.00	.00	2.00	.00	66.67	.00	100.00	75.00
1.00	1.00	1.00	1.00	3.00	.00	2.00	1.00	2.00	66.67	100.00	66.67	100.00	100.00
1.00	1.00	1.00	1.00	4.00	1.00	2.00	1.00	2.00	33.33	100.00	66.67	100.00	100.00
1.00	1.00	1.00	1.00	4.00	2.00	3.00	1.00	2.00	66.67	100.00	66.67	100.00	100.00
1.00	1.00	1.00	1.00	4.00	.00	2.00	.00	2.00	.00	66.67	.00	100.00	75.00
1.00	1.00	1.00	1.00	3.00	.00	2.00	1.00	2.00	66.67	100.00	66.67	100.00	100.00
1.00	1.00	1.00	1.00	4.00	1.00	2.00	1.00	2.00	33.33	100.00	66.67	100.00	100.00
1.00	1.00	1.00	1.00	4.00	2.00	3.00	1.00	2.00	66.67	100.00	66.67	100.00	100.00
1.00	1.00	1.00	1.00	4.00	.00	2.00	.00	2.00	.00	66.67	.00	100.00	75.00
1.00	1.00	1.00	1.00	3.00	.00	2.00	1.00	2.00	66.67	100.00	66.67	100.00	100.00
1.00	1.00	1.00	1.00	4.00	1.00	2.00	1.00	2.00	33.33	100.00	66.67	100.00	100.00
1.00	1.00	1.00	1.00	4.00	2.00	3.00	1.00	2.00	66.67	100.00	66.67	100.00	100.00
1.00	1.00	1.00	1.00	4.00	.00	2.00	.00	2.00	.00	66.67	.00	100.00	75.00
1.00	1.00	1.00	1.00	3.00	.00	2.00	1.00	2.00	66.67	100.00	66.67	100.00	100.00
1.00	1.00	1.00	1.00	4.00	1.00	2.00	1.00	2.00	33.33	100.00	66.67	100.00	100.00
1.00	1.00	1.00	1.00	4.00	2.00	3.00	1.00	2.00	66.67	100.00	66.67	100.00	100.00
1.00	1.00	1.00	1.00	4.00	.00	2.00	.00	2.00	.00	66.67	.00	100.00	75.00
1.00	1.00	1.00	1.00	3.00	.00	2.00	1.00	2.00	66.67	100.00	66.67	100.00	100.00
1.00	1.00	1.00	1.00	4.00	1.00	2.00	1.00	2.00	33.33	100.00	66.67	100.00	100.00
1.00	1.00	1.00	1.00	4.00	2.00	3.00	1.00	2.00	66.67	100.00	66.67	100.00	100.00
1.00	1.00	1.00	1.00	4.00	.00	2.00	.00	2.00	.00	66.67	.00	100.00	75.00
1.00	1.00	1.00	1.00	3.00	.00	2.00	1.00	2.00	66.67	100.00	66.67	100.00	100.00
1.00	1.00	1.00	1.00	4.00	1.00	2.00	1.00	2.00	33.33	100.00	66.67	100.00	100.00
1.00	1.00	1.00	1.00	4.00	2.00	3.00	1.00	2.00	66.67	100.00	66.67	100.00	100.00
1.00	1.00	1.00	1.00	4.00	.00	2.00	.00	2.00	.00	66.67	.00	100.00	75.00
1.00	1.00	1.00	1.00	3.00	.00	2.00	1.00	2.00	66.67	100.00	66.67	100.00	100.00
1.00	1.00	1.00	1.00	4.00	1.00	2.00	1.00	2.00	33.33	100.00	66.67	100.00	100.00
1.00	1.00	1.00	1.00	4.00	2.00	3.00	1.00	2.00	66.67	100.00	66.67	100.00	100.00
1.00	1.00	1.00	1.00	4.00	.00	2.00	.00	2.00	.00	66.67	.00	100.00	75.00
1.00	1.00	1.00	1.00	3.00	.00	2.00	1.00	2.00	66.67	100.00	66.67	100.00	100.00
1.00	1.00	1.00	1.00	4.00	1.00	2.00	1.00	2.00	33.33	100.00	66.67	100.00	100.00
1.00	1.00	1.00	1.00	4.00	2.00	3.00	1.00	2.00	66.67	100.00	66.67	100.00	100.00
1.00	1.00	1.00	1.00	4.00	.00	2.00	.00	2.00	.00	66.67</			

## **Research diary**

**1999 - 2001**

Date  
Subject  
Centre

25.11.1999

Request for certificate from the supervisor

28.11.1999

Certificate to enter to the centres

1.12.1999

Letters to all the centre managers

2.12.1999

Approval from the centre  
Aco

3.12.1999

Approval from the centre  
Bet-shean

12.12.1999

Approval from the centre  
Shlomi

12.12.1999

Meeting with centre manager  
Shlomi

13.12.1999

Preparing letters to all the centre managers about the date that will be collected

17.12.1999

Approval from the centre  
Afula



19.12.1999  
Sending the letters to all the centre managers

19.12.1999  
Meeting with centre managers  
Nahariya, Cabri

20.12.1999  
Meeting with centre manager  
Aco

23.12.1999  
Approval from the centre  
Migdal Ahemek

28.12.1999  
Visit in the centre  
Nahariya

29.12.1999  
Meeting with centre manager – arranging the Pilot  
Nesher

5. 1.2000  
Approval from the centre  
Zefat

10. 1.2000  
Approval from the centre  
Nazart

11. 1.2000  
Meeting with centre manager  
Afula

12.1.2000  
Visit in the centre  
Nesher

17.1.2000  
Receiving enrichment curriculum  
Afula

18.1.2000  
Visit in the centre  
Cabri

2.2.2000  
Visit in the centre  
Shlomi

10.2.2000  
Receiving the enrichment booklet from the gifted department - Jerusalem

21.2.2000  
Meeting with Abrahams – the regional manager  
Ministry of Education

22.2.2000  
Visit the “sold” institute – charge on the location and the identification process of the  
gifted population  
Jerusalem

5.3.2000  
Interview with the supervisor

15.11.2000  
Interview with centre manager - students' questionnaires - the Pilot  
Nesher

22.11.2000  
Teachers' questionnaires and interviews – Pilot  
Nesher

29.11.2000  
Observation – the Pilot  
Nesher

10.12.2000  
Interview with the ‘hothouse’ manager  
Maalot

13.12.2000  
Interview with local welfare manager  
Nesher

14.12.2000  
Interview with centre manager  
Cabri

17.12.2000  
Interview with local welfare manager  
Ma'alot

19.12.2000  
Interview with centre manager  
Nahariya

24.12.2000  
Interview with centre manager  
Shlomi

26.12.2000  
Students' and teachers' questionnaires  
Nahariya

3.1.2001  
Interview with the 'hothouse' manager  
Nesher

7.1.2001  
Students' and teachers' questionnaires  
Maalot

11.1.2001  
Interview with centre manager  
Acco

14.1.2001  
Students' and teachers' questionnaires  
Shlomi

16.1.2001  
Interview with teacher  
Cabri

18.1.2001  
Students' and teachers' questionnaires  
Afula

21.1.2001  
Observation  
Ma'alot

22.1.2001  
Students' and teachers' questionnaires  
Acco

23.1.2001  
Students' and teachers' questionnaires  
Cabri

25.1.2001  
Interview with teacher  
Acco

31.1.2001  
Interview with teacher  
Afula

6.2.2001  
Interview with centre manager  
Bet-Shean

11.2.2001  
Interview with teacher  
Shlomi

18.2.2001  
Interview with teacher  
Ma'alot

20.2.2001  
Interview with centre manager  
Migdal Ha'emek

27.2.2001  
Interview with teacher  
Nahariya

5.3.2001  
Observation  
Acco

15.3.2001  
Observation  
Afula

18.3.2001  
Observation  
Shlomi

27.3.2001  
Observation  
Cabri

27.3.2001  
Observation  
Nahariya

2.4.2001  
Meeting with all the centre managers  
Haifa

10.4.2001  
Students' and teachers' questionnaires  
Migdal Ha'emek

16.4.2001  
Interview with centre manager  
Nazareth

17.4.2001  
Interview with centre manager  
Afula

23.4.2001  
Interview with regional manager  
Ministry of Education

24.4.2001  
Interview with teacher  
Observation  
Migdal Ha'emek

30.4.2001  
Students' and teachers' questionnaires  
Nazareth

1.5.2001

Students' and teachers' questionnaires  
Bet-Shean

2.5.2001

Interview with centre manager  
Safed

7.5.2001

Interview with teacher  
Observation  
Nazareth

8.5.2001

Interview with teacher  
Observation  
Bet-Shean

13.5.2001

Students' and teachers' questionnaires  
Safed

20.5.2001

Interview with teacher  
Observation  
Safed