

Curriculum Integration in Hong Kong's Primary Schools: Context, Theory and Practice

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by

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Curriculum Integration in Hong Kong's Primary Schools:

Context, Theory and Practice

Abstract

This thesis reports on a survey of the perceptions of serving primary school teachers regarding the implementation of curriculum integration in Hong Kong. The survey attempted to identify the contexts that effect the introduction of curriculum integration and to discover the extent to which respondents recognised the need to enhance the implementation of curriculum integration in primary schools. It also questioned teachers about obstacles that needed to be overcome, and teaching strategies, professional development and resources required to ensure successful implementation of curriculum integration. Finally, the thesis makes recommendations for the future policy based on these teacher concerns. A written questionnaire dealing with the context, theory and practice of the implementation of curriculum integration was administered to the participants of the Primary Retraining Course offered by the Hong Kong Institute of Education. In addition, semi-structured interviews were conducted with key informants, identified from those respondents to the questionnaire who occupied key positions in primary schools. It was found that teachers generally agreed on the benefits to students of curriculum integration. They also agreed that there was a need to extend the practice of curriculum integration, although there were felt to be some difficulties in enhancing the implementation process. These difficulties mainly concerned issues of instructional design, competence of teachers and heavy workloads. Furthermore, teachers interpreted the meaning of the term, integration, in diversified ways, which was reflected in the range of approaches deemed to be acceptable and the suggested pace of implementation. It was concluded, therefore, that a step-by-step approach to implementation should be adopted so that, in the early stages, schools should be advised to offer combinations of subject-bounded as well as integrated curriculum. Other important determinants for successful implementation were the existence of a collaborative culture within the school, further professional development to increase teachers' knowledge and understanding of the principles of integration and some degree of relief from heavy workloads. Parental support, targeted contributions from the Education Department and tertiary institutions, reform of public examination systems, quality teacher education programmes and the capacity to take account of lessons learned from the past curriculum innovations were also factors that policy makers needed to consider.

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Chapter 1: Introduction

1.1 The context – What is the need for change?

According to the Hong Kong Government (1998), the primary school curriculum aims to provide a coherent and balanced programme to promote the all-round development of students. All government and aided primary schools adopt a core curriculum including Chinese, English, Mathematics, General Studies, Music, Physical Education, and Art and Crafts as well as Putonghua. A syllabus for each core subject is prepared by the Curriculum Development Council (CDC). Syllabuses are regularly reviewed to meet changing educational and community needs. Other learning programmes such as civic, drug, environmental, sex education and others are offered on a cross-curricular basis or as separate optional subjects. One question frequently asked is how students in Hong Kong perform in these learning programmes. There seems to be no definite answer to the question. However, the following information may be regarded as an indicator in Hong Kong's case.

The U.S. Department of Education (1999) has claimed that the Third International Mathematics and Science Study (TIMSS) is the largest, most comprehensive, and most rigorous international study of schools and students ever conducted. During the 1995 school year, students from 41 nations, including Hong Kong, were

assessed at different grade levels to compare their mathematics and science achievement. As a result, at both the fourth and eighth grade, local students were above the international average in both Science and Mathematics.

Nonetheless, there may be other indicators of achievement besides the above-mentioned information. Regarding the quality of student learning, Biggs (1999, p.13) asserts “Learning is thus a way of interacting with the world” and further introduces the idea of surface and deep approaches to learning. According to Biggs, surface-learning is associated with an intention to get the task out of the way with the minimum of trouble, while appearing to meet requirements. Deep learning is associated with a felt need to engage with the task appropriately and meaningfully. It is the ‘need to know’ that becomes the critical factor for quality learning.

Therefore, while Hong Kong may have done quite well with regard to student learning and achievement in recent years, this is not necessarily a reason to neglect exploring the possibility for a change in the education system to enhance further the quality of student learning in the future.

1.2 Postmodern age and information era

With the birth of the postmodern age, advances in telecommunications, along with more rapid dissemination of information are challenging old ideological and

scientific certainties. The postmodern age also brings flexible economies, which call for more adaptable skills in the workforce of the future requiring the replacement of standardized schooling systems with more varied patterns of teaching, learning and schooling. (Hargreaves, 1995).

The growth in information technology (IT) has also changed the daily lives of human beings. People live in an 'Information Era' and they know that information continuously pours in every second, every hour and every day. It may go beyond national boundaries and become an international issue. Once people have a computer connected to the Internet, at anytime and anywhere, people can have access to whatever information they want.

Regarding information technology in national perspectives, in the U.S.A., President Clinton set out plans to develop the "National Information Infrastructure" in 1994 and has made the commitment to bring technology into the classrooms to promote lifelong learning. Similarly in the U.K., the Education Department has developed the first education Superhighway - the SuperJANET. The U.K. government realised the importance of IT by revising the National Curriculum framework in 1995 so that students would be taught the necessary IT skills. As David Blunkett (1999, online), current Secretary of State for Education has put it, "Information Technology is a key enabler for the UK economy. It offers

great possibilities for generating growth and increasing productivity. It has enormous potential as a learning tool.” In 1997, the Ministry of Education of Singapore announced the Master plan for IT in Education as integral to innovation in education, aimed at anticipating the needs of the 21st century and producing a workforce of excellence. Likewise in Hong Kong in 1998, the Secretary for Education & Manpower, Mr. Joseph W. P. Wong announced the launch of a five-year strategy for promoting IT in education to better prepare the school sector for the future.

Such changes challenge schools. For educators and learners, one of the greatest challenges of the ‘Information Era’ is to learn how to manage data; how to use the data to upgrade their own lives. The new technological reform is transforming how people deal with other people and how people learn. With an apparently unlimited database readily available, students and teachers no longer need to be a repository of information. What they need is to know where to obtain the up-dated information, how to retrieve the information and how to apply it to solve daily-life problems.

1.3 Government policy in the Hong Kong Special Administrative Region – the needs of society & individuals

Mr. Tung Chee-Hwa, The Chief Executive of the Hong Kong Special

Administrative Region (SAR), delivered the 1999 Policy Address on 6 October 1999. The following was one of the key points:

Cultivating talents for a knowledge-based society – Hong Kong must adopt “life-long learning” and become an innovative and knowledge-based society.

Hong Kong people should aim at all-round development of their children.

With the birth of the ‘Information Era’, what does the future hold for this generation of students? What does the society expect of teachers, who are the key persons in the education system? If it is true that in this new era ‘nothing lasts but change’, the most valuable contribution those teachers could give their students is the ability to become independent and life-long learners. Learning should therefore be viewed as a continuous process that does not end after formal school education, but never stops. Life-long learning should be one of the directions for the review of the education system in Hong Kong. Teachers should be able to help shape the minds of the next generation, the leaders of tomorrow. Therefore, there is a need for Hong Kong to have citizens with diverse abilities such as life-long learning, self-learning, and a sense of commitment and creativity.

As Hong Kong people witness the birth of the 21st century, there is no doubt that the advances in new technology have developed so quickly that people barely contemplated such possibilities one year before. The pace and scope of change has

been as extreme as it has been speedy. Technology will lead to a huge amount of information all available around people. People in Hong Kong, especially teachers and students, must learn to survive in the postmodern age and information era and acquire new knowledge and skills or be left behind. More of the future labor force of Hong Kong will be well-informed workers. Consequently, the community has very high expectations of the education outcomes. Educators and students nowadays may find it is their responsibility to meet the high standards that they and the society have set for themselves. In order to meet the challenges ahead, there is an urgent need to provide opportunities and support for Hong Kong people to develop their potential and advance themselves. Since the world has changed, so must the education system.

1.4 Primary education in Hong Kong: subject-bounded curriculum and integrated curriculum

In Hong Kong, many educational changes have taken place in the last decade. In 1975, the Activity Approach (AA) was officially introduced into schools to enhance teaching and learning at the primary level. One of the characteristics of AA is the promotion of Project Work or thematic approaches in teaching. This involves cross-curricular studies and integration of subject content. In 1985, the “Guidelines on Civic Education in Schools” was announced by the Education

Department. It was intended to promote civic education through whole-school learning activities regarding the formal, informal and hidden curriculum. In 1990, the Education Commission (1990) announced the Education Commission's Report No.4 (ECR4) which recommended the establishment of a cross-curricular framework of targets and target-related assessments that would set a clearer direction for teaching, learning and assessment. Based on this framework, a Target-Oriented Curriculum (TOC) has been developed. TOC involves Chinese, English and Mathematics through four Key Stages. Further, as mentioned in the Report, the school curriculum is fragmented and compartmentalized; the content of school subjects and the range of subjects are increasing and this is placing too much burden on students. There may be some methods that can be adopted to improve the situation and bring greater relevance to learning. It was recommended in the Report which related areas of learning taught separately under different subject disciplines should be grouped together.

In April 1992, therefore, a special section responsible for the integration of school subjects was established in the Curriculum Development Institute (CDI) of the Education Department. Since that time, officers in this section have been dealing with issues, in cooperation with a number of schools, concerning the development of the integrated curriculum. Furthermore, the following is one of the noted

examples of integrating the primary school curriculum. The Curriculum Development Institute, in 1994, in cooperation with a group of teachers from a primary school in Hong Kong tried to integrate the local Primary 4 curriculum. They started with the theme entitled 'A Happy Life' which involved contributions from 11 school subjects. A parallel-discipline design and then an interdisciplinary inquiry approach were used. The whole process involved teacher, student and parent participation; and formative evaluation was carried out. One example of the negative comments from parents included the worry regarding the quantity of formal written homework and the impact on examination results. However, positive comments were many. They included such findings as children asked more questions than before; corrected their mistakes in homework with a smile; talked in English during a telephone conversation with classmates; and voluntarily revised the homework. Moreover, General Studies was officially introduced in 1996 as a core subject in the primary school curriculum through integrating the subjects of Social Studies, Primary Science and Health Education.

To summarize, in order to provide students with a balanced primary school curriculum between the subject-bounded and integrated curriculum, a number of relevant measures have been introduced by the Hong Kong Government since the official introduction of the Activity Approach in 1975. These include Project

Work, cross-curricular studies such as Civic Education, integrated subjects such as primary General Studies, and other initiatives such as a modular curriculum within individual subjects.

1.5 Review of education system

In September 1999, the Education Commission launched the review of the education system in Hong Kong. The scheduled stages of review are the identification and finalization of aims of education and a framework for education reform. On 22 September 1999, the Education Commission (1999) announced the proposed 'Aims of Education'. They are summarized as follows:

Overall Aims of Education - To enable everyone to develop his/her potential to the full according to his/her characteristics in the moral, intellectual, physical, social and aesthetic domains so that each individual is ready for continuous self-learning, thinking, exploring, innovating and adapting to changes throughout his/her life; filled with self-confidence and team spirit; and is willing to strive incessantly for the prosperity, progress, freedom, democracy and the rule of law of the society, and to contribute to the future well-being of the nation and the world at large. Priorities should be accorded to enabling our students to enjoy learning, enhancing their effectiveness in communication, and developing their creativity and sense of commitment.

Aims of School Education - School education is the stage for developing students' basic skills and attitude for life-long learning. The aim of school education is to encourage students to construct basic knowledge and develop their basic ability and attitude so as to prepare them for the building of learning and civilized society.

In addition, the key components of the Education Commission's review of the education system are reforming the curricula, improving the assessment mechanism, removing obstacles to learning in the system, reforming the university admission system, increasing post-secondary learning opportunities and formulating resource strategies. Since "reforming the curricula" is one of the key components of the education reform, the Curriculum Development Council (1999a) proposed the 'Holistic Review of the Hong Kong School Curriculum' in October 1999. At the end of the consultation, a coordinated agenda, strategy and schedule of related reforms is to be jointly made by the Education Department (ED), Curriculum Development Council (CDC), Hong Kong Examinations Authority (HKEA), Education Commission (EC) and Board of Education (BoE). However, some of the highlights regarding the broad reform measures are summarized below:

Curriculum as learning experiences for whole person development

The curriculum should provide students with five lifelong learning experiences including life experiences, community service, intellectual development, sports and the arts, and work-related experiences that are essential to students' whole person development. Emphasis should be put on development of nine generic elements for lifelong learning including information technology skills, communication skills, numeracy skills, problem solving skills, critical thinking skills, creativity, study skills, collaboration skills, and self-management. The organization of the curriculum should move from compartmentalized and overcrowded school subjects to eight Key Learning Areas including Chinese, English, Mathematics, Science, Technology education, Personal, social & humanities education, Arts education, and Physical education for a broad and balanced curriculum. There should be an open and flexible framework for different organisations/ courses rather than a 'teaching syllabus'. These new arrangements will then require greater continuity, progression and coherence to bridge gaps at interfaces and reinforce links of formal, informal and non-formal curricula.

Enhancement of quality teaching and learning

School should be kept as the centre of student learning. At various stages of schooling, it will be necessary construct a conceptual road map for lifelong

learning which can accommodate new needs of society. These include strengthening relevant elements of learning and providing alternatives, improving the quality of teaching and learning, catering for student potential, abilities and needs, and using feedback from assessment including objective tests, projects and portfolios to improve teaching and learning.

Flexible use of learning resources

Thinking should be directed away from rigid time-tabling to flexible learning time, and from textbooks to diversified learning resources.

Implementation of effective curriculum initiatives

The initiatives for bringing about these changes are: using integration in an open and flexible curriculum framework to develop diversified organizations and models, applying student-focused spirit as a common and overriding principle for teaching/learning, introducing modular curriculum as a form of curriculum organization, and utilizing information technology as a learning tool and resource.

Research agenda and priority

Theory directs practice and practice informs theory. It is seen as important to strike a balance between theory and practice through developing an agenda for curriculum research. Emphasis should also be put on evaluation research that will inform processes, possibilities and constraints of curriculum change related to the

new curriculum at various levels of analysis.

In summary, the key concepts adopted by the Education Commission for the review of the education system are a curriculum which is student focused, an education system which has no loser, a strategy based on quality life-wide learning and a focus that encourages society-wide involvement. “Student-focused” aims at giving more room and flexibility for student learning. The term “no loser” signals the intention of an approach giving opportunity for everyone to learn anywhere, at anytime and giving due recognition for what they achieve. The emphasis on “quality” helps all citizens to realize their potential and enables everybody to achieve basic standards and strive for excellence. “Life-wide learning” sets targets that provide students with comprehensive learning experiences through formal, non-formal and informal modes and allows learning to extend beyond school subjects or examination syllabuses; and finally, “society-wide involvement” encourages the Government, educators, and the community as well as learners themselves, to contribute to the reform. In order to achieve the above-mentioned key concepts, therefore, perhaps there is a need to re-organise the current primary school curriculum. Curriculum integration may be one of the critical issues.

1.6 Curriculum integration in school

According to the 'Holistic Review of the Hong Kong School Curriculum' as outlined above, a common core curriculum is therefore regarded as no longer suitable for meeting the needs of students and the society. One of the main reasons for reforming the school curriculum is to set the directions for developing an open, flexible and coherent framework for Curriculum 2000 onward as a means to improve the quality of students through effective teaching and learning.

If it is time that history repeats itself, perhaps it is worthwhile looking at the Keele Integrated Studies Project, although that project studied the secondary school experience. Nevertheless it can act as a reference for enhancing the implementation of curriculum integration in Hong Kong. In the United Kingdom, the Keele Project led by David Bolam and David Jenkins was the first phase of several curriculum development projects financed by the Schools Council in the late 1960s. It provides a case study of planning curriculum change and of the problems in moving towards more social and integrated studies (Social Studies) in secondary schools. Shipman (1974) investigated the project's work, through observation, questionnaire and interview, to obtain a picture of the way decisions about curriculum innovation were made. He and his colleagues identified the implications for future similar exercises. They are summarized as follows:

Integrated studies

There is a need for teachers to identify and understand the definition of curriculum integration before starting the innovation. Subject boundaries arise because knowledge is conceived in terms of genuine disciplines accounting for the strength of the resistance to change. There was no evidence in the schools studied that integration led to increased or decreased power for the head of individual subjects.

Curriculum innovation in schools

There were unpredictable outcomes of what appeared to be a clearly defined innovation. The slow rate of curriculum change was usually associated with the conservatism of teachers, and the constraints exercised within the school classroom situation. Moreover, concern over standards of student work persisted. The teachers both disliked and appreciated the attention from outside which the innovation brought. However, it seemed that lasting curriculum innovation depended on mobilizing the desire of these schools for public recognition. School-wide planning was necessary.

The organization of curriculum development project

The establishment of teachers' centres and in-service training helped. An infrastructure for curriculum development involving universities, schools, colleges

of education, local authorities, research projects officers and so on, was required to help overcome concerns and solve problems in coordination. As a result it can be said that more time, say, five years, is needed to establish a lasting support and diffusion service.

The wider context for innovation

Innovation was choked by school reorganization and turnover in personnel. The lack of continuity became self-defeating. Teachers are the key persons to implement change in the classroom; but every change is a potential threat to teacher-pupil relations and to standards of work. The evaluation concluded that every innovation requires more skill from teachers. Many teachers may lack the skill necessary and would be more effective and happy with conventional teaching.

Regarding the teachers' part in innovation, Shipman (1974) identifies the pressures on the innovating teachers and their extra workloads. These were:

1. Preparing new materials for the new courses, material particularly for less able children, and materials for use by individual children;
2. Arranging for multi-media use, timetables, rooms for enquiry methods, and team meetings;
3. Feedback requirements, meetings/conferences, and visitors;

4. The need to learn new knowledge and to become involved in new conceptual frameworks;
5. The separation from class teaching and from subject teaching; and
6. Anxiety about standards; and difficulties in evaluating integrated work.

Furthermore, Shipman also agrees with what Bolam (1973) has illustrated as the problems facing schools introducing schemes such as integrated studies. The issues include: justification of curriculum content, staff involvement, teaching style, student grouping, student attainment, timetabling, room use, and parents' concern.

In summary, with reference to the Keele Integrated Studies Project, the following questions are critical for the implementation of an integrated curriculum in Hong Kong: Do teachers concerned understand the innovation? Are they equipped with the necessary competence? What is the teacher's resistance to change? How can resources and support for teachers be provided? What are the impacts on students, teachers, and schools? What are the supporting factors for curriculum innovation?

1.7 Objectives of the study and research questions

As mentioned in Section 1.5 (p.10) of this chapter, the Curriculum Development Council proposed the 'Holistic Review of the Hong Kong School Curriculum' in 1999. It has been suggested that emphasis should be put on a research agenda that

will inform processes, possibilities and constraints of curriculum change taking into account what is known about the theory and practice of curriculum change.

Further, Section 1.2 (p.2) indicates that with the birth of the postmodern age and information era, there is an urgent need for Hong Kong people to upgrade themselves in order to cope with the new challenges they are facing. The education system must change just as the world has changed. As a consequence, as highlighted in Section 1.3 (p.4), the Chief Executive of the Hong Kong Special Administrative Region has announced a programme for cultivating the talents for a knowledge-based Hong Kong society – Hong Kong people should aim at all-round development of their children. According to the context of primary education and the EC Report No.4 as discussed in Section 1.4 (p.7), in order to provide students with a balanced primary school curriculum between the subject-bounded and integrated curriculum, a number of relevant measures have been introduced by the Hong Kong Government. Furthermore, in September 1999, the Education Commission launched the review of the education system in Hong Kong. The reform advocates student-focused, no loser, quality, life-wide learning and society-wide involvement for all in education in Hong Kong – all of these themes have been introduced in Section 1.5 (pg.13). With reference to the Education Commission's proposal on the 'Aims of Education', whole-person

development should be promoted through activities conducted inside or outside classes, and should not be taught or discussed in isolation. School should not only be the place for study and examinations, but the place for learning to live and work. Formal, informal and non-formal education should be integrated through a review of the school curriculum so as to enable students to have all round development. As a result, for an open, flexible and coherent framework for Curriculum 2000 onwards, the context and needs as mentioned above should be included in the research agenda of the curriculum change - curriculum integration in schools. The findings of such research can be developed as constructive recommendations, which should be beneficial to the future implementation of integrated curriculum in Hong Kong's primary schools.

Furthermore, the Keele Integrated Studies Project mentioned in Section 1.6 (p.14) has suggested many implications for the implementation of curriculum integration. The main concerns are identified as follows: introduction of integrated studies, curriculum innovation in schools, organization of curriculum development projects, consideration of the wider context for innovation, the teachers' part in innovation, teachers' pressures and workload. Other related issues are justification of curriculum content, staff involvement, teaching style, student grouping, student attainment, timetable, room use, and parents' concerns.

In short, regarding the implementation of integrated curriculum, the obstacles to be overcome, the necessary teaching strategies, the professional development of teachers, and support/ resources for teachers are the critical factors to be included in the relevant research agenda.

Since teachers are the critical agents for the introduction of changes into their classrooms, the teachers themselves should be the major focus of analysis and source of evidence (Gross 1971, Doyle and Ponder 1977, Fullan 1982). Therefore, there is a need to identify and study the perceptions of primary school teachers toward the implementation of curriculum integration. Based on analysis of teachers' perceptions, the current study intends to examine how teachers understand and interpret curriculum integration in Hong Kong's primary schools with the considerations of context, theory and practice. The direction and approach of the current study on curriculum integration has been identified and outlined with reference to the related issues (Figure 1.1) as mentioned above, including: the context of postmodernism and the information era; the policy statement of the Chief Executive of the SAR; the problems of primary education in Hong Kong as included in EC Report No. 4; and, the current review of the education system including the proposed "Aims of Education" & "Holistic Review of the Hong Kong School Curriculum". The experience and implications

from the Keele Integrated Studies Project also provide a useful reference source.

The Objectives of the current study have been identified and the research questions have been developed accordingly. This has given rise to four objectives and thirteen research questions. The objectives are listed as follows:

1. To note the contexts that effect the introduction of curriculum integration and identify the need for enhancing the implementation of curriculum integration in Hong Kong primary schools;
2. To examine primary school teachers' perceptions concerning obstacles which need to be overcome in the implementation of curriculum integration;
3. To examine primary school teachers' perceptions concerning teaching strategies, professional development, resources and support teachers needed for the implementation of curriculum integration; and,
4. To make recommendations for the future implementation of curriculum integration based on these teacher concerns.

Regarding objective one, the research questions are:

1. What is the context of introducing curriculum integration in Hong Kong primary schools?
2. What is curriculum integration?
3. Why is curriculum integration important?

4. What are the student benefits?
5. What is the extent to which curriculum integration meets the needs of Hong Kong society?

Regarding objective two, the research questions are:

6. Does the teacher believe that curriculum integration works?
7. What are the effects on teachers?
8. What is the impact of curriculum integration on primary schools?
9. Are teachers ready and well equipped to implement curriculum integration?

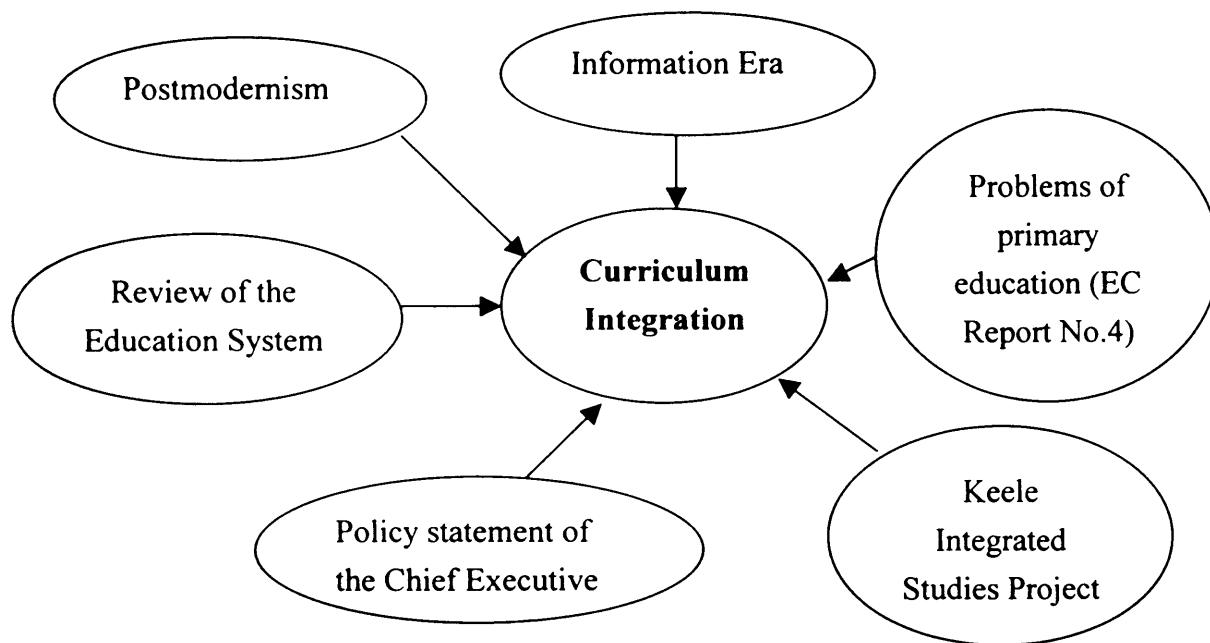
Regarding objective three, the research questions are:

10. Which levels/ approaches of curriculum integration are possible?
11. What kinds of teaching strategies need adoption in order to implement an integrated curriculum?
12. What kinds of professional development are required for teachers to cope with the implementation of curriculum integration?
13. What are the policy, support and resources needed for the success of curriculum integration?

In the next chapter, Chapter 2, relevant literature concerning curriculum integration will be reviewed. The methodology of the study will be introduced in Chapter 3. Then Chapter 4 will present the questionnaire findings while findings

of interviews will be dealt with in Chapter 5. Finally, in Chapter 6, issues, recommendations and conclusions will be presented.

Figure 1.1: Context of curriculum integration in Hong Kong's primary schools: related issues



SPECIAL NOTE

**THIS ITEM IS BOUND IN SUCH A
MANNER AND WHILE EVERY
EFFORT HAS BEEN MADE TO
REPRODUCE THE CENTRES, FORCE
WOULD RESULT IN DAMAGE**

Chapter 2: Literature Review

2.1 What is curriculum integration?

This chapter seeks to explore the relevant literature regarding the theory and practice of curriculum integration. This involves asking questions such as what is curriculum integration?

Why is curriculum integration adopted? And how is curriculum integration implemented?

Regarding the growing global interest in curriculum integration, Drake (1998, p.27) comments that:

In Australia, the development of such programs has accompanied the school reform movement (Vaille, 1997; Williams et al., 1994). Israel is moving toward an integrated approach (Levin, Nevo, & Lutzatti, 1996). Across Canada and the United States, schools are experimenting with interdisciplinary programs. Interdisciplinary studies are most popular at the elementary level. High schools have been receptive because of a variety of obstacles, such as the admission requirements of universities. In 1994, only one fifth of U.S. high schools had interdisciplinary curriculum in practice (Sadowski, 1995). This is rapidly changing as universities move toward more interdisciplinary programming and shift in their acceptance criteria.

Although curriculum integration has become more and more popular than before in many countries, there are still some problems that need to be dealt with during implementation.

These problems will be explored in detail later in this chapter.

2.1.1. Definitions of curriculum integration

There would appear to be at least several different definitions of curriculum integration.

Wolfinger & Stockard (1997, p.5) define curriculum integration as “an approach to curricular organization in which the lines separating subject matter areas from one another are erased, and distinct and discrete subject matter areas disappear”.

McBrien and Brandt (1997, p.55), in their “Guide to Education Terms”, provide one definition of curriculum integration as “a philosophy of teaching in which content is drawn from several subject areas to focus on a particular topic or theme”.

According to Wraga (1996, p.139), definitions of curriculum integration have been provided by many advocates as trans-disciplinary curriculum (Drake, 1993), structured/ unstructured core curriculum (Vars, 1993), immersed/ networked curriculum (Fogarty, 1991), and integration/ complete program curriculum (Jacobs, 1989). Nonetheless, Lake (1994) suggests that all of the definitions of integrated curriculum or interdisciplinary curriculum generally include:

1. A combination of subjects – like the integrated primary General Studies involving Social Studies, Health Education and Science Education in Hong Kong;
2. An emphasis on projects – like the Project Work in teaching Hong Kong’s primary General Studies;
3. Resources that go beyond textbooks – like the teaching and learning packages for

teaching Civic Education in Hong Kong;

4. Relationships among concepts – like the use of concept maps in planning the instruction;
 5. Thematic units as organizing principles – like the selection of, for example, “ Happy Life” as a theme of study in Hong Kong’s primary curriculum;
 6. Flexible schedules – like the re-scheduling of timetables of traditional subject teaching;
- and,
7. Flexible student groupings – like the application of a cooperative learning strategy in the classroom.

Lake further describes how the different kinds of curriculum integration may move from two teachers teaching the same topic but in their own separate classes, to a team design of thematic units, to interdisciplinary courses of thematic units, to a fully integrated curriculum.

However, Beane (1997) argues that there is only one form of authentic integration where students’ questions are used to generate the curriculum. For him, curriculum integration is:

A curriculum design that is concerned with enhancing the possibilities for personal and social integration through the organization of curriculum around significant problems and issues, collaboratively identified by educators and young people, without regard for subject area boundaries. (p.xi)

Beane challenges those who think that curriculum integration was meant to be simply about rearranging content from several subjects around some themes. For him, curriculum

integration is “A broad theory of curriculum design that encompasses particular views about the purposes of schools, the nature of learning, the organization and uses of knowledge, and the meaning of educational experience” (p.95).

2.1.2 Levels/ dimensions of integration

In any reform or innovation in education, the teacher is the key factor. A good professional teacher should be able to relate his or her own teaching to the whole curriculum in two dimensions: subject sequence integration and inter-subject integration. The professional teacher will not only know what other teachers are doing, but will plan a teaching programme to complement that of their colleagues (Lawton, 1989).

Moreover, Morris (1996, p.77) argues that curriculum integration “essentially involves a different approach to the horizontal organization of the curriculum”. He further identified four forms of integration. The first form is Integration by Correlation. This is also called Parallel Curriculum Design. Essentially this type of integration involves arranging the existing academic subjects so that they reinforce each other. For example, the curriculum can be arranged to enable linked concepts in two subjects to be studied at the same time. The second form is Integration by Broad Fields. This involves combining together different disciplines to create a ‘subject’ which contains their key elements. It is also referred to as multidisciplinary curriculum design. One respective example is the introduction of ‘Integrated Science’ by combining together elements of Physics, Chemistry and Biology. The

third form is Interdisciplinary Integration. This involves taking aspects of two or more disciplines and combining them into a single field of study. Integrating aspects of different disciplines, for example, has created the primary 'General Studies'. The last form is Trans-disciplinary Integration. This is the most radical approach of the four. The curriculum is designed so that it focuses on broad learning experiences or on important social problems or issues. For example a curriculum designed to encourage students to solve real problems and to work cooperatively together could involve identifying a worthwhile project and then carrying it out. However, the different approaches to curriculum integration as suggested by Morris have one problem. It is not easy for teachers to distinguish the main differences between 'Integration by Broad Fields' and 'Interdisciplinary Integration' according to the criteria Morris has used.

Nevertheless, Drake (1998) claims that integrated curriculum can be defined in many ways and have a wide range of definitions in different settings. She further identifies a continuum of integration (Jacobs, 1989; Fogarty, 1991; and Burns, 1995) which is accepted by most experts and is being interpreted by many schools. Traditional integration is that the material is taught through the lens of only one discipline. Fusion integration is that a topic is inserted into several subject areas. Integration within one subject is that the sub-disciplines are integrated within one subject area. Multidisciplinary integration is that the disciplines are connected through a theme or issue that is studied during the same time frame, but in

separated classrooms. In elementary school, for example, students may rotate through learning centers representing different subject areas. Generally, students are expected to make the connections among subject areas rather than having them taught explicitly.

Interdisciplinary integration has many different variations but in every case the subjects are interconnected in some way beyond the common theme or issue. These connections are made explicit to the students. The curriculum may be tied together by guiding questions, a common conceptual focus, or cross-disciplinary standards. Trans-disciplinary integration goes beyond the disciplines and is found in many different forms. It differs from the other approaches because it does not begin with the disciplines in the planning process; rather, the planning begins from a real-life context. The disciplines are embedded in the learning, but the focus does not start there. This approach can include cross-disciplinary outcomes, but often emphasizes personal growth and social responsibility.

To sum up, in this study, the continuum of integration suggested by Drake is used as the bases for the different levels of, or approaches to, curriculum integration in Hong Kong's primary schools. They can be compared and illustrated in Table 2.1 below. As a result, examples of curriculum integration in Hong Kong's primary schools can be identified and referred to as the continuum of integration suggested by Drake. This comparison will be used as the levels of/ approaches to curriculum integration in the current study.

Table 2.1: Continuum of Integration

<i>Drake's continuum of integration</i>	<i>Curriculum integration in Hong Kong's primary school</i>	<i>Examples</i>
Traditional	Modular approach within individual subjects	Module/ Unit
Within one subject	Integration of several subjects	General Studies
Fusion & Multidisciplinary	Cross-curricular approach	Civic Education
Interdisciplinary	Real-life thematic approach	Integration Day/ Week/ Month
Trans-disciplinary	Open and flexible framework	Eight Key Learning Areas as proposed by the Curriculum Development Council (1999a) for the Holistic Review of School Curriculum

2.2 Why is curriculum integration adopted?

In defending discipline knowledge, Hirst (1974) also acknowledged some of the criticism on organizing a curriculum into subjects. First, knowledge has no subject structure in itself; and traditional school subjects are products of social demand, university teaching structures and individual teachers' specialist knowledge. Second, there is a need for new organization of curriculum to educate pupils for the context in which they actually live. Third, a subject-bounded curriculum restricts pupils in their thinking, artificialises and limits both the process of learning and their resulting approach to life. Hirst further comments that all knowledge involves the use of conceptual schemes and related truth criteria; and the relations among forms of knowledge and their application in other areas are considered as significant.

Pring (1976) criticizes the reliance on the academic disciplines as the basis for organizing the curriculum. His criticisms have been summarized as follows. Students often lack motivation because not enough account is taken of the interests of students. As the subjects are taught independently of each other, the links between the content and skills promoted by different

subjects are not made. Moreover, little account is taken of students' previous experience, prior knowledge, local community affairs and current issues; and insufficient emphasis is given to addressing personal and social education.

Furthermore, as claimed by Kelly & Blenkin (1993), if a curriculum framed by reference to the content and subjects is regarded as of major importance, then the imposition of such an ideology on pupils plainly leads to unjustifiable inequalities in educational provision rather than to the opposite. Therefore, subject based content may be an alienating concept to many pupils. Learning experiences offered are inappropriate; and not properly matched to the learning styles of most students.

A subject-bounded curriculum ignores what people know about how human beings, and especially young children, develop and make sense of the world. However, social integration cannot be achieved by bolting add-on courses or lessons in moral, social or 'citizenship' education to a curriculum which is built on a frame of values at odds with the kind of social cohesion and integration one is attempting to promote (Blenkin and Kelly, 1998). Beane (1997) identifies the various features concerning curriculum integration and disciplines of knowledge. He argues that disciplines of knowledge are not the same as subject areas in schools. Disciplinary boundaries are fluid and often connect with other disciplines to create interdisciplinary fields and projects. Therefore, curriculum integration and disciplines of knowledge are not enemies; and a separate-subject approach is not the 'end' but the 'means'

of education. Real integration involves daily-life concerns (personal & social), which is at the heart of planning by starting with themes, questions and activities. It is the whole context that gives particular knowledge meaning, not the learning of the subject itself. According to Beane, learning something useful to real-life is better than memorizing all the 'stuff' of little meaning. As a consequence, disciplines of knowledge and curriculum integration can supplement each other so as to provide the whole context of student learning.

According to Lipson et al. (1993), the summary of research findings which support the positive effects of curriculum integration suggests that an integrated curriculum helps students apply skills; and an integrated knowledge base leads to faster retrieval of information. Multiple perspectives lead to a more integrated knowledge base; while an integrated curriculum encourages depth and breadth in learning, promotes positive attitudes in students and provides more quality time for curriculum exploration.

Morris (1996, p.79) reports that, referring to Glatthorn & Foshay (1991), after decades of research on curriculum integration two broad findings are evident:

Firstly, pupils who study integrated curricula learn to read, write and calculate as well as students who have studied more conventional curricula. Secondly, in general, such curricula achieve what they are designed to achieve.

Furthermore, Beane (1997) points out that research reviews have indicated that integration does not appear to reduce pupil performance in the traditional measures of academic

achievement. Drake (1998, p.33) summarizes the research on student benefits from integrated programs as follows:

Vars (1995, 1996a) reviews more than 100 studies that took place from 1956 until 1995.

He cautiously concludes that students in integrated programs do as well as, and often better than, students in conventional programs..... Almost without exception, students in any type of connected curriculum program do as well or better on basic skills than students in traditional programs. The results of standardized tests follow the same pattern.

Therefore, it may be assumed there will be no loss in student learning for the implementation of integrated curriculum except for the difficulties encountered, as in other reforms, when teachers first face the innovation.

2.2.1 Education ideologies and curriculum development

Robin Alexander (1995, p.16) identifies the seven dominant ideologies in primary education as “elementary, progressive, developmental, behavioral, classical humanist, social imperatives (adaptive) and social imperative (reformist)”. Elementary ideology concerns education as a preparation for working life. Progressive ideology has to do with open and negotiable curriculum so as to enable the child to realize his/ her full potential. Developmental ideology requires that the curriculum is structured in accordance with the psychological and physiological development and learning needs of the child. Behavioral

ideology leads to a curriculum structured in terms of observable and testable learning outcomes. Classical humanist ideology is associated with curriculum defined chiefly in terms of cultural heritage and disciplines. Social imperatives (adaptive) ideology links up with a curriculum to meet society's various needs, to enable the child to adapt to changes, and to preserve the existing social order. Finally, Social imperative (reformist) ideology seeks to develop a curriculum to enable the child both to fulfill individual potential and to contribute to societal progress.

Alexander further contends that the seven ideologies have emerged at different points during the history of primary education; and all of them continue to influence the current education system in some ways and to different degrees. Regarding the ideologies, Alexander argues that the central value in respect of a curriculum based on the ideology of classical humanism is a "curriculum about initiating the child into the best of the cultural heritage, defined chiefly in terms of disciplines or forms of understanding: the arts, sciences and humanities". Besides, Beane (1997) contends that academicians (mostly white, upper middle class, and male) narrowly define some subject areas of 'high status' for their own interests and purposes and that the separate-subject approach therefore carries the legacy of Western-style classical humanism that views the world in divided compartments.

Aligned with Alexander's social imperative (reformist) ideology, the social reconstructionism curriculum in the USA, (often associated with John Dewey's experimentalism) lays stress

upon social values: experiences appropriate for developing citizenship and social cooperation.

Knowledge is justified in terms of social needs. Subjects will not be taken for granted, and various patterns of 'integrated studies' may tend to assume more importance than subject compartments (Lawton, 1989).

Drake (1998, p.27) describes John Dewey's (1938/1969) concept of experimental problem-based inquiry learning and interdisciplinary studies:

John Dewey criticizes the narrowness of disciplines and proposes a dynamic educative process that prepares the students to participate in the democratic process. His philosophy can be seen in many integrated ventures today. Dewey recognizes that there is a unique relationship between education and society. Education that uses scientific method could promote positive social change. Intelligence is developed by interactions with the social environment, especially those that require problem solving.

Therefore, it can be argued that Dewey's concept regarding social learning supports the integrative approach to curriculum.

2.2.2 Cognitive development, brain research, and multiple intelligences

Wolfinger and Stockard (1997, p.33-34) assert, "At the elementary education level, the cognitive nature of the child is of greater importance in determining subject matter than is the nature of subject matter". They examine the Piagetian concept of egocentric speech and argue that "according to Vygotsky, in essence, egocentric speech helps to regulate the developing

child's behavior" and "gradually becomes the instrument of thought as it is typically used by adults in planning and solving a problem". Wolfinger and Stockard further point out that according to Vygotsky's zone of proximal development in which a child can solve a problem with help but not alone:

In particular, support is given to the use of group projects because of the opportunity for children to interact with and teach one another. Support is also given to children's contributing suggestions for areas of study to a particular theme or problem. Often children will ask questions or suggest areas of study that are just beyond their current levels of ability or knowledge; this places them into the zone of proximal development (p.35).

In brief, Vygotsky's attention given to the role of language and interaction with others supports the integrated approach to curriculum including the use of thematic approach and group projects as important issues in enhancing the cognitive development of children.

Group work is generally accepted as an essential part of today's primary classroom practice.

It can enhance children's learning, supporting the slower learner while stretching the most able (Galton & Williamson, 1992). The ORACLE - Observational Research and Classroom Learning Evaluation Project (Galton et al., 1980; Galton and Simon, 1980) was the first major observational study of the British primary classroom led by Maurice Galton and his colleagues and took place over a five-year period from 1975 to 1980. One of its main aims

was to describe the effectiveness of different styles of teaching including learning in groups and their effects upon pupil behavior and on pupil achievement. From the project, it was found that students could be physically grouped and working individually, or physically grouped and working collaboratively. Therefore, there is a need to consider carefully the reasons for placing students in groups and monitor whether they are interacting and collaborating within their groups for purposeful learning.

Gardner (1983, 1993, 1999) has developed the idea of multiple intelligences - there are at least eight. He lists them as: linguistic, mathematical-logical, musical, spatial, interpersonal, intrapersonal, naturalist and bodily-kinesthetic. He argues that only the linguistic and mathematical-logical intelligences have been really taught and measured in schools; and that students can learn more if the other six intelligences are fully involved in teaching as well. Gardner further suggests that students would be better served academically if disciplines could be presented in a number of ways and learning could be assessed through a variety of means. On individual differences in learning asserted by Wolfinger & Stockard (1997, p.41):

The concept of multiple intelligences can also bolster the concept of an integrated curriculum, because it points out the fact that children bring various strengths to the classroom... the curriculum needs to have a wide variety of activities so that children of varying abilities can select from or develop activities appropriate to their ways of learning and encoding information.

Other than the multiple intelligences of learning, there are theories regarding how the brain works. As pointed out by Begley (1996), there are more than 100 trillion connections in the brain circuitry. Drake (1998) argues there are 100 trillion neurons waiting to be wired into a mind; only 50% of these can be attributed to heredity and the rest are determined by life experiences. Caine & Caine (1997) suggest it is very important to offer learners the right experiences at the proper time; and these experiences connect in meaningful ways since this is how the brain processes information to make sense of the world. As such, brain research strengthens the basis of curriculum integration, which emphasizes holistic learning and life experience. In summary, curriculum integration may be a good means to cater for multiple intelligences and individual differences in primary classrooms.

2.2.3 Teacher as a key factor in curriculum integration - school culture and teachers' benefits

Hong Kong teachers are in the profession of serving people. They are often looked upon as role models, given the responsibility of shaping the future of Hong Kong. Moreover, they are faced with the changes, challenges and opportunities brought about by an increasingly open, sophisticated and technologically advanced society. By way of illustration, in September 1999, the Chief Secretary for Administration of SAR, Mrs. Anson Chan, delivered an education lecture to teachers at the Hong Kong Institute of Education. She claimed that the community has placed very high expectations on the teachers. Some of these were to:

- Inspire students to derive pleasure from learning for the rest of their lives;
- Instill in them a sense of commitment and responsibility towards themselves, their family, and their society;
- Nurture their creativity and give free rein to their innovative spirit; and
- Cultivate their young minds to think critically and independently, discern right from wrong, and make full use of the information which bombards them all the time.

Just a couple of decades ago, teachers could well take their students' respect and obedient attention for granted. Their authority was seldom questioned, and their words usually obeyed.

Today with a roomful of eager minds waiting to be enlightened, teachers find themselves facing a generation of students who cannot wait to challenge and question. Some of the teachers who go into the profession with the ideal of nurturing the young may find themselves feeling frustrated and dejected. They may feel that they are shouldering the entire blame for falling academic standards. Nevertheless, for education innovation of any kind, including the introduction of curriculum integration, there is a need for teachers of various backgrounds to implement reform in their classrooms. Hargreaves (1994) argues that subject departments with strong and enduring boundaries are characterized by teachers identifying themselves as subject specialists, reluctant to move outside those boundaries, and that subject integration has the power to transform school cultures because it brings subjects and curriculum content together.

Drake (1998) contends that if change is to be authentic, a collaborative effort among teachers is necessary; and that there are some ways in which schools have broken down the structural barriers or departmental boundaries. According to Drake, there is a need for establishing new teams of responsibility, assigning the coordinator of integrated studies and teachers from different departments to common workrooms, identifying common goals for students across the subject boundaries, establishing a cross-disciplinary action research team, and developing a collaborative school culture where working together is regarded as the norm. Furthermore, Drake identifies teacher benefits regarding teaching integrated curriculum as follows:

There are fewer discipline and attendance problems because students tend to be more engaged in the learning. The teacher is no longer necessarily the expert in the classroom; rather, he or she now models the lifelong learner that the students are encouraged to be. (p.18)

On the other hand, regarding the integrative approaches in schools, the research conducted by Miller et al. (1997) found that eventually certain teachers emerge as leaders in many schools. According to Miller and colleagues, this is partly because of the emphasis on shared leadership and site-based management. Teachers take responsibilities for new roles and they learn throughout the changes. Moreover, schools that successfully bring about change do establish a collaborative culture.

2.3 How is curriculum integration implemented?

On the implementation of curriculum integration, Lake (1994, online) argues, “A final word of caution is for the teacher who feels that this must be an all-or-nothing scenario. There may well be instances in which curriculum integration is not the most appropriate way to go. A careful examination of successfully integrated programs may suggest the extent to which integration can or should be implemented.”

2.3.1 Planning for curriculum integration

According to a number of educators (Gehrke, 1991; Jacobs, 1989; Lipson et al., 1993; MacIver, 1990), factors that need to be considered in adopting an integrated curriculum approach are:

- Common definitions of terms (such as theme, strand, or outcome)
- Available resources
- Flexibility in scheduling
- Support services
- Subjects and concepts that will be integrated
- Links between integration and broader outcomes
- Curricular scope and sequence
- How evaluation will occur
- Parent and community support

- Themes that promote the transfer of learning and connections
- Team planning time that is used to exchange information about content, students, special areas of teacher expertise, and teaching methods

Regarding types of curriculum organization, Morris (1996) describes ‘integration’ as how bodies of knowledge can be combined; ‘core curriculum’ as identifying what is a necessary part of every student’s curriculum; and ‘modularization’ as creating manageable units of learning. He further suggests that each of the different forms of organization can be employed in parallel.

Furthermore, Beane (1997) claims there are four dimensions of curriculum integration. The first dimension is the integration of past experience to help students in new situations. Second, social integration links the school and community life. Third, is the integration of everyday and popular knowledge. Fourth, comes the integration as curriculum design with personal/social problems as the starting point, and then applying the principle to only pertinent knowledge (not for test or examination) according to the theme/questions/concepts and activities. Regarding the question of where the themes come from and how they are identified, Beane further introduces the notion of organizing centers from the source of topics within subjects, social problems, building on themes which appeal to student concerns and which can be extended to cover all stages of schooling (from kindergarten to secondary) and which engage with universal themes such as ‘change’.

However, Lapp & Flood (1994) suggest other procedures for planning integrated curriculum.

It is necessary: first, to select a broad theme to incorporate skills and information and reflect learners' interests; second, to prepare learning material of different varieties; third, to engage learners by setting goals/objectives and planning appropriate activities; fourth, to group learners together in different settings; and fifth, to develop the theme in meaningful ways. Finally, learners' attainment must be assessed systematically according to the preset goals/objectives.

2.3.2 Teaching strategies for integrated curriculum

Jenkins & Shipman (1976) assert that innovation can take place within existing subject structures, or across them; and this is why integrated studies is a key case in the relation of curriculum change to organisational change in the school. They further claim that it involves enquiry-based methods and some form of team teaching, and it is more potentially radical than single subject changes.

However, Bernstein (1971, 1975, 1990) describes a useful way of analyzing the relationship between the contents of a curriculum. According to his description, the term 'classification' is the strength of the boundary between content, so 'strong classification of curricular knowledge' means that the contents are strongly separated from each other. The term 'frame' is used to indicate the degree of control of the teacher and student over the curriculum, therefore 'strong pedagogic frame' means there is a low level of control over key curriculum

decisions by teacher and student. He further distinguished between integrated and collection codes of curricular organization. With reference to Bernstein's approach of analyzing different curriculum content, it may be that strong classification of curricular knowledge and pedagogic frame are found in Hong Kong's primary school curriculum. In the other words, it will be necessary to create a weak classification of curricular knowledge and pedagogic frame in developing the integrated primary school curriculum.

Furthermore, the use of appropriate teaching strategies is another critical factor in the implementation of school-based curriculum. Maurice Galton and his colleagues (Galton et al., 1999) built upon Robin Alexander's framework (1995) on what it means to 'teach a class', by subdividing classroom discourse into three categories. Direct instruction instructs pupils in what to do, how to do it and checks their progress. Enquiry poses problems by asking challenging questions and by offering alternative explanations. Scaffolding concerns the development of support for pupils so that they learn to 'think for themselves'.

However, in the information-based era, the use of the Web as a resource for children's learning also conflicts with another shibboleth of those currently in charge of educational agenda, namely the emphasis on specialist single subject teaching. When the children use the Web as a resource the information is not available in discrete subject packages. It is also rarely presented in some abstract context, but usually situated within a realistic problem-focused situation (Galton et al., 1999).

Regarding the innovative ways in learning and teaching involving information technology, Drake (1998, p.188) suggests some aspects. Teachers must be willing to update their own computer skills and information literacy skills. Students need to consider technology as a tool and to be willing to explore the ethics of technology. It is important to have educators who are skilled at guiding students through the information maze and can teach them how to judge the value of it. The final aspect is that the community offers the best place for a real-world context and will undoubtedly contain experts from whom students can learn.

2.3.3 Student assessment for integrated curriculum

According to Ryan (1994, p.1), authentic assessment is “the process of gathering evidence and documenting a student’s learning and growth in an authentic context”. Paulson & Paulson (1991, p.295) describe a portfolio as “a purposeful, integrated collection of student work showing student effort, progress, or achievement in one or more areas. The collection is guided by performance standards and includes evidence of students’ self-reflection and their participation in setting the focus, selecting contents, and judging merit.”

Moreover, Wolfinger & Stockard (1997, p.295-313) argue:

The integrated curriculum is based on the concept of authenticity in learning. Children develop and complete a variety of projects during which they often pursue topics of interest to themselves and so of their own choosing. Consequently, the type of assessment used in the integrated curriculum should also be authentic and as such should

reflect what it is that the children have accomplished. Portfolios are the primary method of providing authenticity in assessment. Portfolios are more appropriate to the integrated curriculum than the traditional forms of assessment because they provide samples of the child's work in progress and the finished product, rather than artificially constructed tests of information..... The most common type of portfolio is the documentation portfolio. However, if the purpose is to make curricular decisions, then standardized information from a variety of classes may be desired and the evaluation portfolio might be the better choice, or, if the desire were to show the curriculum in its best light, perhaps the showcase portfolio would be the most appropriate.

They also describe the five factors that underlie the construction and use of portfolio in the integrated curriculum. The first factor is that the portfolio is collaborative, longitudinal and multidimensional in nature. It is also a way of viewing the process and the product of learning. Further, it allows students to explore a variety of perspectives and, finally, it also allows self-reflection by both teacher and students.

On the other hand, regarding the assessment of student performance in the integrated curriculum, Drake (1998, p.27) argues:

Interdisciplinary programs tend to use alternative assessment procedures such as performance assessment, portfolios, self-assessment, peer assessment, interviews, and rubrics (scoring guides that offer the criteria for skills). These are difficult to standardize.

Educators are currently developing measures that capture a full and accurate picture of what a student can do, rather than rely solely on standardized tests. Standardized tests do not accurately measure achievement levels for interdisciplinary studies.

In short, traditional assessment tends to cater for the performance of individuals on individual tasks; and it always considers only the end results. Therefore, different forms of authentic assessment are more appropriate to the integrated curriculum than are traditional standardized forms of measurement.

2.3.4 Teachers' professional development

Because all curriculum reform must eventually impact on classroom practice if it is to be successful, effective curriculum development has to be based on initiatives that come from within the school, that is, if curriculum innovation is to be curriculum development in the full sense it must be school-focused. The ability of teachers to promote the development of curriculum clearly depends on their ability to evaluate its effectiveness and, here again, the question of what kind of external help teachers need is crucial (Kelly, 1989). In order for teachers to be accountable and responsible, they must be well equipped both academically and professionally to deliver quality education. Thus, there is an urgent need to provide teachers with opportunities to take part in relevant professional development programmes, particularly at school level. This follows from the argument that the desire of teachers to be treated as professionals, rather than as state functionaries, has encouraged a tendency to look

for ways in which teachers could solve their own professional problems at a local level by school-based curriculum development rather than reacting to more remote initiatives (Lawton, 1989).

Regarding professional development for teaching interdisciplinary studies, Miller et al. (1997) indicate that most staff are receptive to the 'train-the-trainer' approach because the teacher is usually enthusiastic about what he or she is presenting; and that a consultant from the central office works with the staff and establishes an ongoing relationship. They argue this leads to an increase in teacher leadership and is appreciated by most teachers as being more effective for real change.

2.3.5 Support and resources

On overcoming the obstacles and finding success in curriculum integration, Drake (1998) suggests the following support from the head/ management of the school is essential. There should be shared vision with colleagues – a top priority is making the school a better place for students. Senior staff need to participate in the innovation. Provision of time and resources for curriculum development should be noted. Moreover, a collaborative school culture is essential in which senior staff support teachers during inevitable mistakes. Finally there must be support for the emphasis of learning from experiences. Drake further points out the characteristics of a curriculum leader. He or she should have shared vision with colleagues, respect of the staff, understanding of the reform, some relevant curriculum

development experience, active participation, and a passion for the task.

22.3.6 Factors for the success of curriculum integration

Beane (1997, p.95-103) illustrates the dilemmas concerning implementing curriculum integration. They are summarized and listed in Table 2.2:

Table 2.2: Dilemmas of an integrated curriculum

<i>Dilemmas</i>	
The need for reform	Bad past records of reforms
'Bottom-up' planning structure	Loosening the grip of centralized authority
'Situational' structure (school-based) – may suit the needs of one school but not the other	Involves creativity and autonomy
Fear of students' poor performance in traditional standardized assessments	Comparative studies have proved that it is not true

Beane further identifies the obstacles for those who advocate curriculum integration. First, some people want a rigid, predetermined curriculum that satisfies the adult craving to push their own interests and desires onto children. Second, some people want authoritarian control over the minds of young people. Third, some people see that this kind of teaching is more complex, more difficult and more tiring than the use of prepackaged lesson plans. The last obstacle raises problems regarding internal organization, coordination, documentation and assessment. In sum, according to Beane, the challenge to inter-disciplinary learning implies dramatic change (so much would have to change) in the organization of classroom, the nature of assessment, further professional development of teacher (many teachers would have encountered nothing like curriculum integration either in their own school days or during initial teacher training), and the role of students in their learning.

Concerning the implementation of curriculum integration in Hong Kong's primary schools, it is too important to be left solely to the policy-makers or the government. Every single stakeholder in the community needs to reflect on what he or she can contribute to education. Teachers, in particular, will need to critically re-think what they can achieve with their newly empowered role. The profession in general, have to recognize the key challenges of the New Millennium; and to ensure that students will be well equipped to face the exciting new century. As such, there is a need to identify a list of difficulties in teaching an integrated curriculum in the Hong Kong context with reference to the obstacles Beane has identified above. The difficulties may include developing instructional plans, instructing students directly, group learning, inquiry learning, management of student learning, catering for individual differences, motivating student learning, using information and communication technology in teaching, and approaches/methods of assessment.

2.3.7 Relevant research reviews on curriculum integration

According to Zandt & Albright (1996), one of the most informative evaluations of curricular change was undertaken by the Progressive Education Association (PEA) in the famous Eight-Year Study (1932-1940), which matched 1474 graduates of thirty experimental high schools with peers who had attended traditional high schools to determine whether an integrated curriculum was as effective as a conventional curriculum concerning independent knowledge bases. Regarding this study, Zandt & Albright introduce what Aikin (1942) has

described as the factors affecting the successful implementation of curricular innovations in schools. These factors are central purpose, democratic leadership, time, teachers' collaboration, parent/ community participation and support, student participation, new methods of evaluation, resources, external support, and freedom and responsibility.

Further, Zandt & Albright point out that a growing body of interdisciplinary research outlines common patterns which appear key in the curricular change process at both the middle and high school levels: personal, interpersonal, and institutional factors which either promote or hinder the development of interdisciplinary curricula. With the three key factors that Zandt & Albright have pointed out from research and the other issues as generated from the eight-year study, a list of factors can be identified for the successful implementation of curriculum integration in Hong Kong. They may include:

- Consistency in policy
- More time for the reform
- Cooperation among staff in schools
- Leadership
- A reform of the existing public examination system
- Teachers' recognition of the curriculum innovation
- Public recognition of teachers' effort
- Various support for teachers

- Centralized resource center
- Professional development of teachers

With regard to local context, the Curriculum Development Council (1999b) conducted a large-scale questionnaire survey on primary school teachers' perceptions of the Guide to Primary Curriculum in 1997 to 1998. One hundred primary schools were selected randomly as the samples. Altogether 2,502 teachers responded to the questionnaire. According to the official document entitled "Research Report on the Study of Primary School Teachers' Perceptions of the Guide to Primary Curriculum" published in 1999, the following are some of the main findings extracted in relation to the implementation of curriculum integration:

1. Teachers having teaching experience from between 6-20 years had more concerns about the aims of primary curriculum than the other teachers;
2. Teachers indicated the ranking order of importance regarding various child development as intellectual, moral, social, physical and aesthetical;
3. Regarding the arrangement of learning activities, most teachers had little concern on the linkage with other subjects;
4. Most primary schools had a lot of concern about the curriculum linkage between upper primary and secondary; and
5. Most primary schools had relatively little concern about the curriculum linkage between lower primary and kindergarten.

According to the above-mentioned study, teachers showed different perceptions of the aspects of child development, curriculum linkage among subjects, and curriculum sequencing between kindergarten and primary and between primary and secondary. Moreover, teachers with 6-20 years of teaching experience are most suitable as the potential/ target group for further research on the implementation of curriculum reform.

2.4 Summary and concept map of the study

In this chapter, relevant literature concerning curriculum integration has been examined. This included: what curriculum integration is - definitions of curriculum integration; levels/dimensions of integration, why curriculum integration is adopted - theories of education ideologies and curriculum development; social learning theories; cognitive development; brain research; multiple intelligences; disciplines of knowledge; strength and weakness of curriculum integration; teacher as a key factor in curriculum integration, how curriculum integration is implemented - planning for curriculum integration; teaching strategies for integrated curriculum; student assessment for integrated curriculum; teachers' professional development; support and resources; factors for the success of curriculum integration; and, relevant research reviews on curriculum integration.

Therefore, it is possible to compare the integrated curriculum with the subject-bounded curriculum with reference to the literature. The critical elements may consist of time-consuming endeavor, student achievement on traditional standardized tests, resources

required, whole-person development, life-long learning skills and attitudes, links between

classrooms, school and daily-life learning, and accommodating the needs of the society.

Hence, Table 2.3 illustrates the comparison:

Table 2.3: Critical elements - Subject-bounded curriculum Vs Integrated curriculum

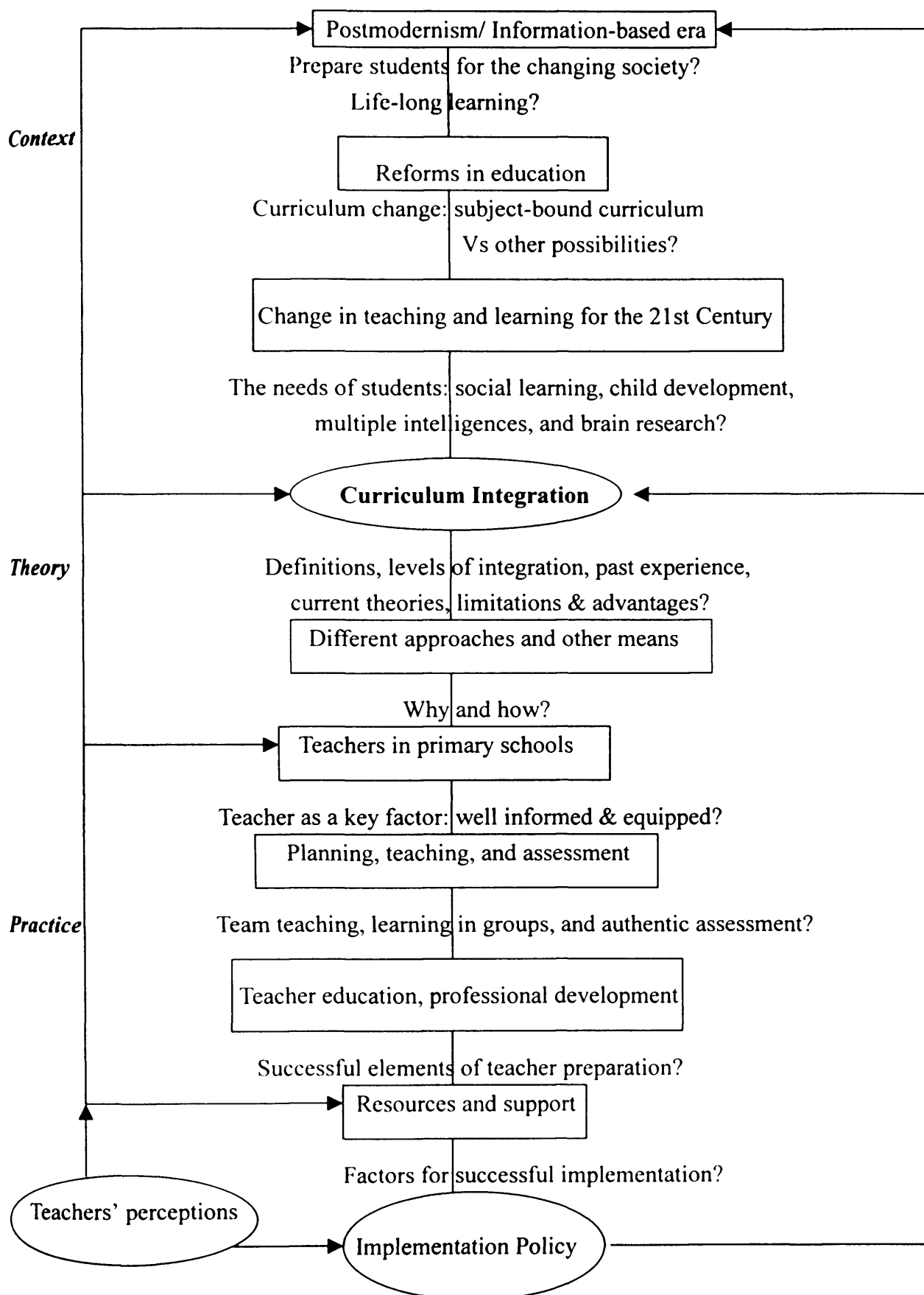
<i>Elements</i>	<i>Subject-bounded curriculum</i>	<i>Integrated curriculum</i>
Time-consuming endeavor	Less	More
Student achievement on traditional standardized tests	The same as Integrated curriculum	The same as and sometimes better than Subject-bounded curriculum
Resources required	Less	More
Whole-person development	Less	More
Life-long learning skills and attitudes	Less	More
Links among classroom, school and daily-life learning	Less	More
Accommodate the needs of the society	Less	More

The strengths of integrated curriculum are many. From the perspective of postmodernism, and the advance of technologies in the 21st century, the needs of the society, child development and social learning, multiple intelligences and brain research, student achievement, holistic and daily-life related learning, and life-wide and life-long learning, curriculum integration seems to be beneficial to students and the society. However, there also seems to be a number of difficulties in the implementation. For longitudinal integration, there is a need for the establishment of stronger links between the curriculum for kindergarten and lower primary education, and for upper primary and secondary education. On the lateral coherence, there are even gaps and overlaps among subjects in the primary school curriculum.

Teachers may have different views on the status of individual subjects/ areas of learning; and consequently, it may hinder the development of curriculum integration in schools. Moreover, whether the policy-makers provide teachers with various resources and support is critical for the curriculum reform. There is also a need to solve problems such as teachers' stress and extra workload brought about by the introduction of curriculum reform. Since teachers are the key to any education reform, it is a vital problem if they lack the necessary skills, knowledge, recognition and commitment for the innovation. Professional development is therefore a critical factor for equipping and upgrading teachers for the change.

In summary, if there is a need to review the overlaps, lateral and longitudinal coherences, and the whole structure of primary school curriculum in Hong Kong, then curriculum integration should be one of the solutions. Therefore, before introducing a new curriculum approach, it is of value to seek teachers' views and opinion on the relevant issues. According to the objectives and research questions as identified in Section 1.7 of Chapter 1 (p.17), together with the highlights of the literature review in this chapter, the concept map of the current study has been developed and is illustrated in Figure 2.1. The methodology of data collection will be presented in the next chapter.

Figure 2.1 - Curriculum Integration in Hong Kong's Primary Schools: Context, Theory and Practice (Concept Map)



Chapter 3: Methodology

3.1 Research methods

Kemmis and McTaggart (1988) identify the questionnaire survey approach to gathering data as probably the most commonly used method of inquiry. Youngman (1986) lists seven possible question types: verbal or open, list, category, ranking, scale, quantity and grid. Youngman further describes the response category as one only of a given set of categories, meaning the respondent can only fit into one category. He also suggests there are various types of scale including nominal, ordinal, interval and ratio that may be used in questionnaires. Cohen & Manion (1994) state that the survey method is the most commonly used descriptive method in educational research. They further illustrate three prerequisites governing the design of any survey: the purpose of the inquiry, the focused population, and the resource available. On the other hand, interview is a personal contact situation in which one person asks another questions which are pertinent to a particular research problem. It allows the focus to settle upon a specific issue that can be explored in some real depth and determines what an issue looks like from another's vantage point (McKernan, 1994). Cohen & Manion (1994) also acknowledge the argument that the research interview has been defined as a conversation initiated by the interviewer for the specific purpose of collecting research-relevant information. In this present study of

curriculum integration in Hong Kong's primary schools, therefore, the methodology involved questionnaire survey for general findings and interviews for in-depth exploration.

3.2 Target population

As mentioned in Section 2.3.7 of Chapter Two (p.52), findings of the large scale questionnaire survey entitled "A Study of Primary School Teachers' Perceptions of the Guide to the Primary Curriculum" conducted by the Curriculum Development Council (CDC) in 1999 revealed that teachers having primary school teaching experience from 6-20 years express more concern about the aims of the primary curriculum than the other teachers.

A study by Burden (1982) identified three stages of a teacher's career. These were the survival stage in the first year, the adjustment stage from the second through fourth years, and the mature stage from the fifth year and beyond. Teachers at the mature stage felt secure and could handle anything that happened in their teaching. Furthermore, they were continually trying new techniques and were concerned with their relationship with the students and in meeting these needs. Fessler (1995, p.185-187) offered a different perspective on the teacher's career cycle arguing that the components are "pre-service, induction, competency building, enthusiastic and growing, career frustration, career stability, career wind-down, and career exit". After

a few years of teaching, teachers go into the phase of “competency building”. They are striving to improve teaching skills and abilities, seeking new materials, methods, and strategies. Teachers at this stage are receptive to new ideas, attend workshops and conferences willingly, and enroll in graduate programmes on their own initiative. According to Fessler, teachers at the “enthusiastic and growing” stage have reached a high level of competence in their jobs but continue to progress as professionals. They love their teaching, are willing to interact with their students and explore new teaching approaches. With regard to the above-mentioned study conducted by the CDC, teachers with 6-20 years of teaching experience fall into the “competency building” stage and the “enthusiastic and growing” stage as identified by Fessler. Moreover, these teachers also fall into the “mature stage” according to Burden’s synthesis of teacher career stages. Besides, many teachers within the ‘6-20 group’ play an important role as the “backbone” of the middle-level management. They have opportunities to become involved in the planning and/or arrangement of matters concerning school curriculum. Many of them also have opportunities to participate in refresher/retraining courses offered by the Education Department or teacher training institutions. If the government intends to implement curriculum integration successfully in primary schools, it is very important to find out whether this group of teachers understand and support the curriculum reform.

3.3 Sample population

Although surveys are a commonly used method they do pose several problems, not least the question of defining a representative sample and obtaining a sufficient proportion of completed questionnaires. While obviously the more closely the sample represents the population the greater the case to generalize from the results, a low response rate can negate these effects. Consequently there is often a balance to be made between taking a sample which may be representative and that which can guarantee a sufficiently high rate of return to make the survey credible. In the case of Hong Kong teachers, it has proved remarkably difficult to obtain reasonable returns from a postal questionnaire survey if a random sample of teachers are chosen as the respondents. Teachers have had to deal with many education reforms in the past few years. They are facing challenges from the introduction of School Management Initiatives, Target Oriented Curriculum, School-based curriculum development, integration of subjects like General Studies, Parent-teacher Associations, Quality Assurance Inspection, use of information technology in teaching, Curriculum Adaptation, and the recently introduced Language Benchmarking Examinations. Besides, many teachers are upgrading their qualifications by attending various further study courses leading to the award of university graduate status. Because of the introduction of the Quality Education Fund, many teachers have been guided or

instructed by the school management to apply for the funding. As a result, many teachers are spending much time and are very busy in drafting plans for the application. In sum, primary school teachers in Hong Kong have been occupied with various activities/ issues including teaching/ non-teaching, and educational and administrative duties, which can result in their indifference to research activities such as responding to or returning postal questionnaires.

As it is extremely difficult to get a high return rate of questionnaire survey by a random sampling of Hong Kong primary school teachers, the experienced teachers attending the primary retraining course offered by the Hong Kong Institute of Education (HKIEd), a dominant local teacher education institution, have been regarded as an opportunity sample for the questionnaire survey. However, there is a need to justify the degree to which the sample is representative or not.

According to the Hong Kong Institute of Education (1999, online), the Retraining Course for Primary School Teachers (Five-week) aims to further develop participants' knowledge and understanding of recent theories and methods of teaching and learning, and increase their commitment towards the teaching profession. The entry requirements require that applicants must be registered teachers of primary schools who have at least five years teaching experience; have not attended the same course within the previous five years; and, are nominated by their Heads of Schools. Priority

is given to qualified teachers with at least five years post-qualification teaching experience. Schools releasing in-service teachers to undertake this in-service full-time block release course may apply to the Government for provision to appoint supply teachers. Some of the teachers are certificate holders while the others are degree holders and they have the advantage of furthering their studies by means of attending professional study programmes with the support of their schools. Since the schools have to appoint supply teachers to replace the course participants, normally there is only one teacher from each primary school attending the retraining course at the same period of time in order to avoid too much disturbance to individual schools. Furthermore, these teachers have opportunities in handling curriculum matters in their schools since most of them are regarded as the “middle-management”. Considering their background, experience and expertise, this group of teachers are more likely to be pre-disposed, knowledgeable and adaptable to education/curriculum change. In addition, they cover the target group of teachers having 6-20 years of teaching experience. To sum up, in order to keep a balance between guaranteed return rate and representative sampling, it was thought worthwhile to identify the course participants as the opportunity sample for the target population.

3.4 Sample and sample size

Cohen & Manion (1994) suggest that small-scale surveys often resort to the use of

non-probability sample such as opportunity sampling which involves choosing the nearest individuals to serve as respondents and captive audiences including pupils or student teachers. They further suggest that the sampling is far less complicated to set up and is considerably less expensive. As such, the sample came from qualified serving teachers with various years of teaching experience, who participated in the Primary Retraining Course for primary school teachers offered by the HKIEd. Opportunity sampling was used to ensure a higher return rate of questionnaire survey. The sample comprised all course participants enrolled in the Primary Retraining Course offered by the Hong Kong Institute of Education in April & May of the year 2000. Furthermore, Table 3.1 illustrates the comparison of independent variables in Section A of the questionnaire with the government statistics (Education Department, 2000) on primary school teachers. The design and structure of the questionnaire will be explained later in this chapter.

Table 3.1: Information about the sample groups and government statistics

<i>Item</i>	<i>Variable</i>	<i>Sample (%)</i>	<i>Government Statistics (%)</i>	<i>Representative Sample or not</i>
1. Gender	Female	78.5	77.5	Yes
	Male	21.5	22.5	
2. Teacher training	Teacher's Cert.	65.9	62.3	Yes
	BEd or above	34.1	37.7	
3. Years of primary school teaching	Less than 6	5.9	10.3	Majority (74.8%) of the sample come from the group having 6-20
	6-10	46.7	19.8	
	11-15	17.0	15.1	
	16-20	11.1	13.6	
	More than 20	19.3	41.2	

				years of teaching exp.
4. Main teaching group	Upper primary Lower primary	65.9 34.1	Not applicable	Not applicable
5. Main teaching subject	Chinese Maths General Studies English Physical Ed. Art Music Others (Religious Studies, Library Studies and Putonghua) Computer Studies	62.2 59.3 45.2 40.0 27.4 26.7 19.3 12.6 7.4	Not applicable	Comparable
6. Main teaching experience of integrated curriculum	Modular Approach within subjects Cross-curricular Approach Real-life Thematic Approach	65.9 42.2 26.7	Not applicable	Not applicable
7. Type of schooling	Bi-sessional Whole day	68.1 31.9	70.2 29.8	Yes
8. School funding	Public Sector Private	97.8 2.2	92.0 8.0	Yes
9. School district	Hong Kong Island or Kowloon New Territories	54.8 45.2	42.9 57.1	More teachers in the sample come from Hong Kong Island or Kowloon, and vice-versa

With reference to the above table, there were 106 (78.5%) female teachers and 29 (21.5%) male teachers who responded to the questionnaire. This echoed the fact that female teachers dominate the teaching profession in primary schools: more than

77.5% of the permanent teachers were female. Eighty-nine (65.9%) of them were certificated teachers and 46 (34.1%) were university graduates with the qualification of BEd or above. As regard degree holders in primary schools, 37.7% of teachers held a degree. They had different primary school teaching experience: eight (5.9%) of them had less than 6 years, 63 (46.7%) had 6-10 years, 23 (17.0%) had 11-15 years, 15 (11.1%) had 16-20 years and 26 (19.3%) had more than 20 years (a total of 74.8% of the teachers had 6-20 years of primary school teaching experience). After referring to government statistics regarding teachers' age group, it was estimated and assumed that around 10.3% of them had less than 6 years, 19.8% had 6-10 years, 15.1% had 11-15 years, 13.6% had 16-20 years and 41.2% had more than 20 years (a total of 48.5% of all teachers had 6-20 years of primary school teaching experience). Eighty-nine (65.9%) of them mainly taught upper primary while 46 (34.1%) mainly taught lower primary; and no relevant official statistics could be found regarding this aspect. Their main teaching subjects were: Chinese (84 or 62.2%), Maths. (80 or 59.3%), General Studies (61 or 45.2%), English (54 or 40.0%), Physical Ed. (37 or 27.4%), Arts (36 or 26.7%), Music (26 or 19.3%), other subjects including Religious Studies/Library Studies/Putonghua (17 or 12.6%), and Computer Studies (10 or 7.4%). Regarding trained teachers having taken relevant subjects in teacher training, there were 10785 teachers who taught Chinese Language, 9788 teachers who taught

Mathematics, 9455 teachers who taught General Studies, 4378 teachers who taught English Language, 2643 teachers who taught Physical Education, 2306 teachers who taught Art, and 1430 teachers who taught Music (Education Department, 2000).

Excluding the teachers teaching other subjects, the sample was comparable with the overall profile of serving primary school teachers. For the main teaching experience of integrated curriculum, 89 (65.9%) of them taught a 'Modular Approach within subjects', 57 (42.2%) taught a 'Cross-curricular Approach' and 36 (26.7%) taught a 'Real-life Thematic Approach'; and there were no comparable government statistics found. Ninety-two (68.1%) of them came from bi-sessional schools while 43 (31.9%) came from whole-day schools. According to official statistics, the percentage of pupils in whole-day primary schools has increased gradually over the years and it reached 29.8% of the total enrolment in September, 1999. Since student enrolment is directly related to the number of teachers and schools, the figures help to identify that the sample was representative regarding this aspect. Only 3 (2.2%) of them came from private schools while 132 (97.8%) came from public sector schools. The figures did not vary too much from the government statistics indicating there were 721 (92%) primary schools in the public sector and 63 (8%) primary schools in the local private sector. Regarding school district, their schools were located mainly in Hong Kong Island and Kowloon (74 or 54.8%) or the New Territories (61 or 45.2%). According

to the Primary Schools Profiles published by the Committee on Home-School Co-operation (2000), there are a total of 721 primary schools in Hong Kong: 310 or 42.9% in Hong Kong Island and Kowloon while there are 411 or 57.1% in the New Territories. In the sample, there were more teachers from the schools in Hong Kong Island and Kowloon; nevertheless, this did not vary too much from the government statistics.

Moreover, the majority (74.8%) of the sample had 6-20 years of primary school teaching experience; and about 48.5% of the total population of primary school teachers in Hong Kong came from this group of teachers. In brief, the sample is representative of the target population when comparing with the government statistics except for the issue regarding groups of teachers having different years of primary school teaching experience.

3.5 Design of the questionnaire

Questionnaires are often associated with attitude measurement. Regarding the question of what is attitude, Procter (1993, p.117) argues, "There is little point in reviewing the different definitions of attitude that have appeared over the years. What does seem to be common to most of these definitions is that an attitude is a predisposition to behave in a particular way." Procter further claims that a verbal statement is only a behavioral indicator of an attitude. "Attitude scales are quite like

questionnaires but do not usually use questions. Most use statements with which the respondent has to agree or disagree” (Coolican, 1994, p.138). Furthermore, McKernan (1994) suggests that attitude scales can be accurate and gauge pupil affect and interest towards certain school subjects and curriculum experiences. On commenting on the Likert scaling developed by Rensis Likert (1932), Bryman and Cramer (1997) claim that the multiple-item scales are popular for these and are more likely to capture the totality of an attitude than a single question. Gross (1996) describes Likert scaling as one of the most popular standard attitude scales comprising a set of statements for each of which respondents indicate whether they strongly agree/ agree/ undecided/ disagree/ strongly disagree. He further adds that this type of scale proves more statistically reliable and easier to construct; and it makes no assumptions about equal intervals. However, regarding the five-point Likert scale, Coolican (1994, p.140) argues, “The undecided score is ambiguous. Does it imply a neutral position (no opinion) or an on-the-fence position with the respondent torn between feelings in both directions?”

In order to find out concrete attitudes towards the statements, a Four-point Likert scale was used to help to determine the strength of attitude held by respondents. The aim was to invite respondents to indicate their attitudes toward a number of issues concerning curriculum integration in primary schools. With reference to the research

questions as identified in Section 1.7 of Chapter 1 (p.21), the items were developed in consultation with some key informants selected from the target population, primary school principals, teacher educators, and local and overseas academics.

The whole questionnaire was divided into five sections:

1. Section A: Basic respondent information – this part collected teachers' background information including Gender, Teacher training, Years of primary school teaching, Main teaching group, Main teaching subject, Main teaching experience of integrated curriculum, Type of schooling, School funding, and School district.
2. Section B: Context of curriculum integration – this part collected respondents' attitudes towards the context of implementing subject-bounded curriculum and integrated curriculum.
 - Items 1 to 6 asked for respondents' attitudes towards the present situation of the primary curriculum in the context of primary education in Hong Kong (refer to research questions 1 & 3).
 - Items 7 to 14 asked for respondents' attitudes towards the eight key learning areas as the major part of an integrated curriculum (refer to research question 2).
3. Section C: Theory of curriculum integration – this part collected respondents'

attitudes towards the theories of curriculum integration.

- Items 1 to 7 asked for respondents' attitudes towards the comparison between subject-bounded curriculum and integrated curriculum (refer to research questions 4-6).
- Items 8 to 12 asked for respondents' attitudes towards different approaches or levels of curriculum integration regarding student benefits (refer to research question 10).

4. Section D: Practice of curriculum integration – this part collected respondents' attitudes towards the practice of teaching integrated curriculum.

- Items 1 to 6 asked for respondents' attitudes towards the impact on teachers and schools regarding implementing curriculum integration (refer to research questions 7-9).
- Items 7 to 15 asked for respondents' attitudes towards the most difficult tasks when teaching an integrated curriculum (refer to research question 11).
- Items 16 to 26 asked for respondents' attitudes towards the most important factors for the success of implementing curriculum integration (refer to research question 13).
- Items 27 to 30 asked for respondents' attitudes towards professional

development including which teachers benefit most from teaching an integrated curriculum (refer to research question 12).

5. Section E: Other Suggestions – this part collected respondents' suggestions/ views regarding the implementation of curriculum integration by means of an open-ended question.

In sum, Part B, Part C and Part D were designed to obtain respondents' attitudes towards the context, theory and practice of curriculum integration. Four-point Likert scaling technique was applied for Parts B, C & D. Strength of attitude was measured by assigning a number code to each attitude (strongly agree = 4, agree = 3, disagree = 2, strongly disagree = 1). Hence, the Mid-point of the theoretical range was 2.50.

Those statements with high Mean scores greater than the Mid-point of the theoretical range (2.50) would be interpreted as respondents' agreement, while those with low Mean scores smaller than 2.50 would be interpreted as respondents' disagreement.

Gross (1996: 440) argues that the Likert scale should "if possible, select statements so that for half of the statements 'agree' represents a positive attitude and for the other half, a negative attitude is represented. This controls for agreeable response set, the tendency to agree or disagree with items consistently". Therefore, in Section B (Items 1-6), Section C (Items 1-7) and Section D (Items 1-6), about half of the items were worded negatively in order to avoid habitual response to one side of the scale. On the

other hand, items in Section B (Items 7-14), Section C (Items 8-12) and Section D (Items 7-15, 16-26, 27-30) were presented randomly in the questionnaire so as to avoid a clustering effect. The collected data were processed by the Statistical Packages for Social Sciences (SPSS) software as indicated in the following section.

3.5.1 Descriptive statistics

In this present study, dependent variables were the various statements in the questionnaire and the independent variables included gender, teacher training, years of teaching experience, level/subject taught, ways of teaching the integrated curriculum, types of schooling, school funding and school district/region. Data were analysed by SPSS software to produce the descriptive statistics including the use of nominal scale, ordinal scale and arithmetic average (mean). Since nominal scaling cannot be meaningfully ranked from smallest to largest, it is used only for identification of variables in Section A of the questionnaire. Ordinal scale values indicate only the order or ranking, and this is used only for identification of variables in Sections B, C and D of the questionnaire. There are limitations on saying that a respondent who has, for example, an agreement rating of 4 (strongly agree) is twice as positive in attitude as another respondent with a rating of 2 (agree). All that can be concluded is that one teacher claims to agree more strongly with certain questionnaire items than the other teachers. However, the Arithmetic Average (Mean) is the most

commonly used measure of central tendency. The mean uses the actual values of all the cases as the indication of the degree of agreement or disagreement to the questionnaire items.

Independent variables were correlated with the items in the questionnaire to see which factors appeared to influence teachers' attitudes towards curriculum integration. To this end, independent samples t tests, one-way ANOVA and post hoc tests, crosstabs symmetric measures and partial correlations were conducted by using the SPSS software.

3.5.2 Independent Samples T Test

The Independent-Samples T Test procedure compared the means for two groups of cases. If the significance value for the Levene test was greater than 0.01 then the assumption of equal variances for both groups was made. If the significance value for the Levene test was low, the analysis did not assume equal variances for both groups when calculating the significance of the difference between the two means. A low significance value for the t test (less than 0.01) indicated that there was a significant difference between the two group means. Thus, the Independent Samples T Test was conducted for individual sample groups as identified in Section A of the questionnaire.

3.5.3 One-way ANOVA and Post Hoc Test

In one-way ANOVA, the total variation is partitioned into two components. The between groups variance represented the variation of the group means around the overall mean. If the groups were not of equal sample size, the trends were computed from weighted means. Weighting took the varying sample sizes into account and was the recommended approach for an unbalanced design. Small significance values ($<.01$) indicated group differences. If the significance level was less than .01 this indicated at least one of the groups/ variables differed from the others. Post Hoc comparisons were methods used to determine which group(s) differed. A 99% confidence interval was constructed for each difference. As a consequence, One-way ANOVA & Post Hoc Test were conducted among groups of teachers having different years of primary school teaching experience as indicated in Section A of the questionnaire.

3.5.4 Crosstabs Symmetric Measures and Partial Correlations

The ordinal symmetric measurement indicated the significance, strength and direction of the relationship between the row and column variables of crosstabulations. A low significance value (less than 0.01) indicated that there was a relationship between the two variables. The values of the test statistics could range from -1 to 1. Positive values indicated a positive relationship and vice versa. A low significance value indicated that there was a relationship between the two variables. The low values for

the test statistics indicated that the relationship between the two variables was a fairly weak one. The ordinal symmetric measures are appropriate when both variables are ordinal, category variables. The chi-square measures could test the hypothesis that the row and column variables in a crosstabulation were independent without indicating the strength or direction of the relationship; therefore, it was not used in this study. Since Items 1 to 6 of Section D concerned teachers' perceptions of the various impacts on teachers in the implementation of curriculum integration in schools, Crosstabs Symmetric Measures controlled by individual sample groups were conducted among these items. In brief, as mentioned above, the data collected in the questionnaire survey were analysed by means of the SPSS software using descriptive statistics including arithmetic mean and standard deviation. Furthermore, as well as comparing means, independent samples t tests, one-way ANOVA and post hoc tests, cross-tabs symmetric measures and partial correlation were also conducted. Independent variables were therefore correlated with the items in the questionnaire to see which issues appeared to influence teachers' attitudes towards curriculum integration. The detailed findings are provided in the following chapter.

3.5.5 Pilot study

When piloting a questionnaire, Bell (1999, p.128) suggests asking the respondents the following questions:

1. How long did it take you to complete?
2. Were the instructions clear?
3. Were any of the questions unclear or ambiguous? If so, will you say which and why?
4. Did you object to answering any of the questions?
5. In your opinion, has any major topic been omitted?
6. Was the layout of the questionnaire clear/attractive?
7. Any comments?

Therefore, the questionnaire was piloted in trial runs as far as possible. A random sampling group of 20 serving primary school teachers who were attending the Primary Retraining Course in March 2000 was used for this purpose. The aim of the pilot exercise was to remove the defects from the instrument so that respondents would experience no difficulties in completing it. The suggestions received during the piloting exercise in this study and follow-up action taken were as follows:

- Could the time for completion be reduced to around 15 minutes? There were too many items.”

Average time for completion of the questionnaire was reduced from 20 to 15 minutes.

Question wording was made as simple as possible; and open-ended items were reduced from five to three to shorten the time for completion. Further, the numbers of

items were categorized by sections to avoid the appearance of a large number of items.

- Could I select more than one answer in certain items?

Clear instructions were included such as “more than one answer” for items including “your main teaching subjects”, and “your main teaching experience of integrated curriculum”.

- Some of the statements were unclear or ambiguous:

Double questions were identified and separated into two. This included separating the original item “There is a need to bridge the learning gaps among ‘Kindergarten’, ‘Primary’ and ‘Secondary’ school curriculum” into two new items: “There is a need to bridge the learning gaps between ‘Upper Primary’ and ‘Secondary’ school curriculum” and “There is a need to bridge the learning gaps between ‘Kindergarten’ and ‘Lower Primary’ school curriculum”.

- Some respondents objected to answering the item “Your highest qualification”:

This item was changed to “Teacher training”. Wording such as “Strictly confidential” and “For research purposes only” were included to allow respondents to feel comfortable when answering the questionnaire.

- There were difficulties in reading the items:

The questionnaire items were categorized into sections with proper spacing between

the questions in the hope that this would encourage respondents to read and answer all questions.

- What is the reason for using a Four-point scale instead of using a Five-point scale including a neutral point?

A five-point scale may result in too many neutral answers while a four-point scale may help the respondent to decide whether they agree or disagree with certain items. Even if they cannot decide, they may leave the item blank. As a result, it was decided to keep the Four-point scale.

As a consequence, these responses led to revision of the questionnaire prior to the main distribution. The final version of the questionnaire for the main distribution has been appended in Appendix A.

3.5.6 Distribution and collection of questionnaire

In late April 2000, questionnaires were distributed at the course assemblies to all serving primary school teachers who were taking the Primary Refresher Course offered by the HKIED. In order to reduce the possible sample bias, the purpose and use of the study were clearly explained to respondents; confidentiality and anonymity were also promised. Two hundred questionnaires were distributed. Because of the limitation of time at the course assembly, teachers were asked to complete the questionnaire in their free time and return later. One hundred and thirty-five

questionnaires were returned on or before the deadline at the end of May 2000. The overall response rate of 135 (67.5% of 200) was somewhat encouraging. The responses to individual questionnaire items were found to have slight variations ranging from one to several due to the blanks left by the respondents. However, for this particular study, it was sufficient for the survey to provide what was intended, namely a broad picture, from experienced primary school teachers in respect of the context, theory and practice of curriculum integration in Hong Kong's primary schools.

3.6 Semi-structured interview

There are three types of interview. The structured interview often uses very precise questions and requires short answers. Unstructured interviews are considered to be open-ended and can result in much superfluous information. Unstructured interviews centred around a topic may, and in skilled hands, produce a wealth of valuable data, but such interviews require considerable expertise to control and a great deal of time to analyse (Bell, 1999). Because of this, the semi-structured interview was therefore chosen as appropriate. It allows respondents to express themselves at some length, but offers enough shape to prevent aimless rambling (Wragg, 1978). This results in a set order of questions but also allows extended discussion to investigate valid fields of interest in depth. Since this type of interview has the advantage of

allowing the exploration of areas of interest as they arise during the interview, it was decided to conduct semi-structured interviews to collect some information regarding teachers' perceptions of curriculum integration in primary schools.

Borg (1981) draws people's alertness to problems regarding the factors influencing responses, since interviewers affect responses. These include eagerness of the respondent to please the interviewer, vague antagonism that sometimes arises between interviewer and respondent, or a tendency of the interviewer to seek out the answers that support one's preconceived notions. Regarding the dangers inherent in research by a solitary interviewer, Gavron (1966) also suggests that it is difficult to see how bias can be avoided completely, but awareness of the problem plus constant self-control can help. With respect to these points, the interviewer duly noted the response effect, as suggested by Borg and the bias suggested by Gavron. Therefore, the respondents were reminded, at the beginning of the interviews, to say what they actually thought on the issues they were asked about. Furthermore, the interviewer also indicated a neutral position and standing to the issues raised in the interviews.

3.6.1 Key informants

The key informant interview technique is a variant of general interviewing with the special provision that the interview is with an individual who possesses unique or specialized knowledge, skills or expertise within an organization and who is willing

to share these with the researcher (Goetz and LeCompte, 1984). Further, the key informant interview technique ensures that the researcher gains access to individuals who know their subject and who can provide valuable data (McKernan, 1994).

The Education Department (2000) identifies the key persons involved in curriculum matters in schools. They include:

- Principal & Vice Principal,
- Coordinator of curriculum development,
- Civic education coordinator,
- Extra-curricular activities coordinator,
- Information Technology coordinator, and
- Subject panel head.

For the semi-structured interviews, key informants were chosen from the respondents to the questionnaire survey who agreed to be interviewed. Primary Retraining course participants who studied the optional module entitled “Trends and Developments in Learning & Teaching” were approached for interviews in May 2000. This group of teachers were much concerned with the latest developments in curriculum and teaching in Hong Kong. Finally, a total of six key informants were successfully identified and approached for the interviews. They included one Extra-Curricula Activities coordinator who coordinated various informal learning activities in school,

one Curriculum Development coordinator who was responsible for curriculum matters such as school-based curriculum development, one Information Technology coordinator who supported the use of IT in teaching and learning, one Civic Education coordinator who liaised between subject teachers on various matters related to civic education, and one Subject Head of an English Department. School heads were excluded in the group since they were not identified as the target population for the present study. Therefore, as a replacement, one Class Teacher who was particularly enthusiastic about general class affairs was also included for the interview. Accordingly, the six semi-structured interviews were tape-recorded and transcribed.

The background information of the interviewees is listed in Table 3.2:

Table 3.2: Key informants profile

<i>Special Duty</i>	<i>Extra - Curricula Activities coordinator</i>	<i>Curriculum Development coordinator</i>	<i>Information Technology coordinator</i>	<i>Civic Education coordinator</i>	<i>Class Teacher</i>	<i>Subject Head</i>
<i>Gender</i>	Male	Female	Male	Male	Female	Female
<i>Teacher training</i>	Teacher's Certificate	BEd	Teacher's Certificate	Teacher's Certificate	Teacher's Certificate	BEd
<i>Teaching Experience</i>	20 yrs +	6-10 yrs	11-15 yrs	6-10 yrs	6-10 yrs	16-20 yrs
<i>Main Teaching Group</i>	Upper Primary	Upper Primary	Upper Primary	Lower Primary	Lower Primary	Upper Primary
<i>Main Teaching Subject</i>	General Studies, Chinese	English, Maths.	Chinese, General Studies	Maths., General Studies	Chinese, Religious Studies	English, Art

Main Teaching Experience of Integrated Curriculum	Modular Approach, Cross-Curricular Approach, Real-life Thematic Approach	Modular Approach, Cross-Curricular Approach, Real-life Thematic Approach	Modular Approach, Real-life Thematic Approach	Modular Approach, Cross-Curricular Approach	Modular Approach, Cross-Curricular Approach	Modular Approach, Real-life Thematic Approach
Type of Schooling	Bisessional	Whole-day	Bisessional	Whole-day	Bisessional	Bisessional
School Funding	Public Sector	Public Sector	Public Sector	Public Sector	Public Sector	Public Sector
School District	Kowloon	Hong Kong Island	New Territories	Hong Kong Island	New Territories	Kowloon

3.6.2 Questions to be asked at the semi-structured interview

Interview questions concerning the context, theory and practice of curriculum integration were drafted according to the research questions identified in Section 1.7 of Chapter 1 (p.21). In order to pilot the questions to be asked in the interview, additional discussions were conducted with a group of primary school teachers and principals, and visiting professors at the HKIEd to enhance the quality of the interviews. The major changes included:

- limiting the time of interview from 45 minutes to 30 minutes to avoid monotony;
- separating individual questions into two to avoid ambiguity; and
- including a tailor-made question for individual key informants by asking for their contribution to the implementation of curriculum integration.

Finally, the questions for the interview were identified and listed as follows:

1. How would you explain the term “curriculum integration” to a parent or someone who was not an education specialist? (refer to research question 2)
2. What are the advantages of subject-bounded curriculum? (refer to research question 1)
3. What are the problems of subject-bounded curriculum? (refer to research question 1)
4. Why do primary schools need curriculum integration? (refer to research question 3)
5. Do you think curriculum integration can overcome these problems without reducing the advantages? (refer to research question 6)
6. What do you consider to be the advantages, if any, of implementing an integrated curriculum? (refer to research questions 4 & 5)
7. In which approaches to curriculum integration do students benefit most? Why? (refer to research question 10)
8. Are you equipped to be involved in this curriculum innovation? If yes, then in what ways and if not, then why not? (refer to research question 9)
9. Are you willing to join team teaching with other teachers? If yes, why are you attracted to this form of collaboration? If no, why not? (refer to research questions 7 & 8)

10. What in your opinion are the difficulties of teaching an integrated curriculum?
(refer to research question 11)
11. What are the key factors which bring about the success of implementation of curriculum integration? (refer to research question 13)
12. What do you consider are the most important ways of enhancing the professional development of teachers? (refer to research question 12)
13. How can you contribute to helping the implementation of curriculum integration in your school? (refer to research question 11)

At the six interviews, the order of asking the above open-ended questions was varied on different occasions, but key informants were given freedom to talk about the topic and give their views in their own time. Once the interviewees had touched upon some significant issues concerning curriculum integration, they were asked to explain and expand in more detail. The findings and illustrative comments from the key informants are included in detail in Chapter 5.

3.7 Reliability analysis & validity analysis

According to Procter (1993, p.126), “reliability is about whether a measure works in a consistent way; validity is about whether the right concept is measured”. Therefore, reliability analysis allows one to study the properties of measurement scales and the items that make them up. The reliability analysis procedure calculates a number of

commonly used measures of scale reliability and also provides information about the relationships between individual items in the scale. Using reliability analysis, it is possible to determine the extent to which the items in the questionnaire are related to each other, and an overall index of the repeatability or internal consistency of the scale as a whole can be obtained. Problem items that should be excluded from the scale can be identified and removed or modified.

Procter further claims that the measurement of attitudes deserves great care and close attention to detail including reliability and validity. He further states that measuring the reliability of attitude scales in terms of consistency is measured almost universally by using Cronbach's Alpha coefficient. *Alpha* (Cronbach) is a form of internal consistency, based on the average inter-item correlation. It measures the consistency between clusters of items, and between clusters and the whole. The Alpha reliability coefficient ranges from 0 to 1. A negative value of alpha indicates that items on the scale are negatively correlated and the reliability model is inappropriate. Bryman and Cramer (1997) have suggested that as a rule of thumb, the result should be 0.8 or above.

Consequently, by using the SPSS software, the results of reliability coefficients for Section B (Items 1-6) was .7798, Section B (Items 7-14) was .8753, Section C (Items 1-7) was .7525, Section C (Items 8-12) was .6851, Section D (Items 1-6) was .3207,

Section D (Items 7-15) was .7756, Section D (Items 16-26) was .9082, and Section D (Items 27-30) was .6025. Since all coefficients were positive, it indicated the positive correlation between individual items in the sections.

It was found that the reliability coefficient of Section D (Items 1-6) was .3207; which was relatively lower than the other coefficients. The six items in this section asked for respondents' attitudes toward various aspects regarding the implementation of curriculum integration. These included teachers' confidence in facing curriculum integration, teachers' willingness to work collaboratively with other teachers, teachers' readiness for involvement in curriculum integration and teachers' stress related to curriculum integration. As a consequence, therefore, the statements were diversified which may have caused the relatively small value of the reliability coefficient. However, items in the other sections had been arranged regarding certain categories and purposes; therefore, relatively high values of reliability coefficients were found in these sections.

Regarding the validity, Procter (1993) argues that the best advice is to bear the problem in mind and find ways of improving validity, even if it cannot be definitively measured. He suggests analysing a set of multidimensional attitudes by the most commonly used statistical method - factor analysis. According to Bryman and Cramer (1997), factor analysis enables researchers to assess the factorial validity of the

questions. On validity, Bell (1999, p.104) suggests:

“Tell other people (colleagues, pilot respondents, fellow students) what you are trying to find out or to measure and ask them whether the questions or items you have devised are likely to do the job. This rough-and-ready method will at least remind you of the need to achieve some degree of reliability and validity in question wording”.

As indicated in paragraphs 3.5.5 (p.75) & 3.6.2 (p.83), every effort had been made to improve the reliability and validity of the questionnaire and interview questions by means of piloting the instruments. As a consequence, factor analysis was not applied to test the validity of the questionnaire items. Another reason was due to the categorizing of items by distinguished sections during the drafting of questionnaire statements.

3.8 Ethical considerations

Regarding ethical considerations, the questionnaire returns were anonymous; and the anonymity of the interviewees was guaranteed. Furthermore, all interviews were tape-recorded with the consent of the interviewees. Interview transcripts were verified by the interviewees before finalisation. It was also promised that the raw data including the completed questionnaires, interview tapes and transcripts would not be passed on to any other person or institution.

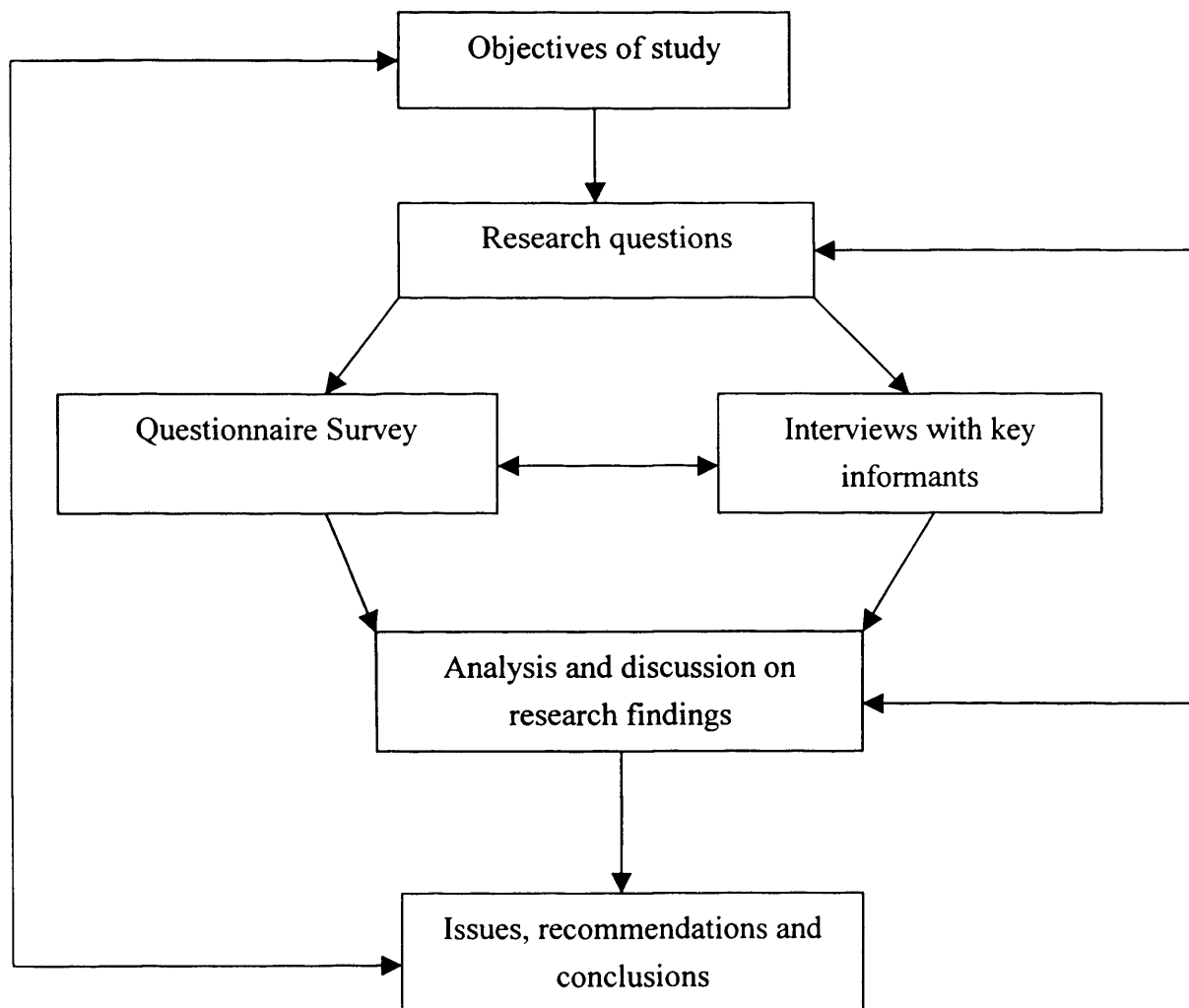
3.9 Some limitations of the study

As argued by Cohen & Manion in Section 3.1 (p.57), the resource available is the critical prerequisite for the design of any survey. It should be emphasized that the present study was small-scale and carried out by a lone researcher: to summarise findings from the interviews and the questionnaire survey which was based on opportunity sampling of the target population (serving teachers having 6-20 years of primary school teaching experience). The samples were taken from the course participants of the Primary Retraining Course offered by the HKIEd at a particular period of time. As mentioned in Section 3.3 (p.60) above, it would be very difficult to have true random sampling of all the serving primary school teachers as the respondents; and it would be expensive, time-consuming and labour-intensive for this small-scale research. Owing to the financial implications and resources available, it was believed that written questionnaire and semi-structured interview were appropriate instruments. Moreover, because of the limitation of time and the availability of the key informants for the interviews, the current study started the interview exercise before the completion of the questionnaire exercise while the respondents were still on course. It was much more difficult for the arrangement of interviews once the key informants completed the retraining and returned to their schools. They were busy again for various reasons in June and July - particularly at

the end of the school year. For further studies, it would be better to complete the analysis of the questionnaire survey before the start of the interview exercise. This would allow the findings obtained from the questionnaire survey to be duly explored in-depth during the interviews. As indicated in Table 3.1 in Section 3.4 (p.63) of this chapter, only a majority (74.8%) of the respondents had 6-20 years of primary school teaching experience. Therefore, there is a need for caution in interpretation, especially considering the relatively small size of individual sample groups. It would perhaps best to sample one hundred percent of teachers having 6-20 years of primary school teaching experience if time and resources are available for future studies. Studies on various groups of teachers with different teaching experiences on curriculum integration are also worth considering in the future.

In summary, Figure 3.1 illustrates the concept map of the methodology of this study while the findings will be presented and discussed in the following chapters. In Chapter 4, the results of the questionnaire survey will be dealt with while Chapter 5 will offer the analysis of the findings of the semi-structured interviews.

Figure 3.1: Methodology (Concept Map)



Chapter 4: The Survey Findings

4.1 Introduction to questionnaire survey findings

The overall response rate of 67.5% (135 returns from 200) was somewhat encouraging.

However, for this particular study it allowed the survey to provide what was intended, namely a broad picture from serving primary school teachers in respect of the following:

- Background information of the respondents (Section A)
- Context of curriculum integration (Section B)
- Theory of curriculum integration (Section C)
- Practice of curriculum integration (Section D)
- Open-ended question - other suggestions about the implementation of curriculum integration (Section E)

As usually happens, not all the returned questionnaires were fully completed having one to several blank items, and the percentages in the analysis which are reported were therefore calculated from the valid returns rather than the total of 135. Data derived from the questions in Section A of the questionnaire which required respondents to provide certain information about themselves has been shown in Table 3.1 in Section 3.4 of Chapter 3 (p.63). Although only the survey findings are considered in the present chapter it may be useful to summarize, at this stage, the relationship between the

objectives of the study, the research questions and the way these are identified within the questionnaire survey and interviews. This is shown in Table 4.1. The details of the particular research objectives and questions were set out in Section 1.7 of Chapter 1 (p.21).

Table 4.1: Relationship among the objectives, research questions, questionnaire items, and interview questions

<i>Objectives</i>	<i>Research Questions</i>	<i>Questionnaire Items</i>	<i>Interview Questions</i>
1	1	Section B (1-5)	2, 3
	2	Section B (7-14)	1
	3	Section B (6)	4
	4	Section C (2,3,5)	6
	5	Section C (7)	6
2	6	Section C (1,4,6)	5
	7	Section D (5, 6)	9
	8	Section D (3, 4)	9
	9	Section D (1, 2)	8
3	10	Section C (8-12)	7
	11	Section D (7-15)	10, 13
	12	Section D (27-30)	12
	13	Section D (16-26) Section E (Open-ended question)	11
4	All		

4.2 Discussion on the general findings

4.2.1 Enhancing the implementation of curriculum integration in Hong Kong's primary schools

Table 4.2 shows the findings of Section B (Items 1 – 6) in the questionnaire survey. This group of items mainly concerned the context of primary school curriculum in Hong Kong.

Table 4.2: Context of primary school curriculum

<i>Section B: Context (Items 1-6)</i>		
In the information-based era:	Mean	S.D.
4. There is a need to bridge the learning gaps between 'Upper Primary' and 'Secondary' school curriculum.	3.28	.53
3. There is a need to bridge the learning gaps between 'Kindergarten' and 'Lower Primary' school curriculum.	3.26	.57
2. It is claimed that lateral coherence across some of the subjects needs to be developed. *	3.13	.54
1. There is some overlapping among the subjects in the Primary school curriculum. *	3.04	.47
6. It needs to re-organize the whole subject-bounded curriculum with curriculum integration. *	2.86	.63
5. Strong subject boundaries are barriers to relating school curriculum to real-life.	2.67	.68

* Items were originally worded negatively in the questionnaire.

Respondents indicated the strongest agreement with Items 3 and 4: there is a need to bridge the longitudinal learning gaps between kindergarten and lower primary curriculum (mean=3.26) and those between primary and secondary curriculum (mean=3.28).

These two findings, in comparison with the relevant findings of the study mentioned in Section 2.3.7 of Chapter 2 (p.52), were slightly different. According to the study conducted by the Curriculum Development Council (CDC), most primary schools had a lot of concern about the curriculum linkage between upper primary and secondary; and most primary schools had relatively little concern about the curriculum linkage between lower primary and kindergarten. However, the present study revealed that teachers indicated similar strong agreement to the need to bridge the learning gaps between kindergarten and primary curriculum, and those between primary and secondary curriculum. Moreover, according to the CDC's study regarding the

arrangement of learning activities, most teachers had little concern about the linkage with other subjects. However, the present study indicated that teachers agree there was a need to enhance the lateral coherence among subjects (mean=3.13); and there was overlapping among primary school subjects (Mean=3.04). Further, “there was a need to re-organize the whole subject-based curriculum with curriculum integration” and “strong subject boundaries were barriers to relating school curriculum to real-life” received the least agreement (means were 2.86 & 2.67) among the items within the whole group. These indicate that respondents were least certain of the need to reduce subject boundaries suggesting that the forms of integration most favoured were of a kind where subject specialists cooperated around some common content or topics. In this study, therefore, teachers did not object to the implementation of curriculum integration in general if the curriculum change was critical for solving some of the problems in the primary school curriculum.

Since the majority (74.8%) of the sample of the present study came from teachers having 6 to 20 years of primary school teaching experience, this group of teachers had indicated their positive attitude toward the need for enhancing the implementation of curriculum integration in primary schools. This positive attitude also echoed with what the CDC’s study had revealed: that teachers having teaching experience from 6-20 years had more concern about the aims of primary curriculum than other teachers.

Moreover, according to a study entitled “The continuity of curriculum and teaching practices between the kindergarten and primary school levels of education” conducted by the Education Department (1993a), it was revealed that kindergarten teachers adopted a more flexible and less formal teaching approach than primary school teachers; it did not enter into primary school teachers’ view that kindergartens should prepare their pupils for primary education by teaching them some primary one curriculum content; and pupils’ learning difficulties were found not to be alarming because of pupils’ good parental support. Furthermore, with reference to another similar study on “The continuity of curriculum and teaching practices between the primary and junior secondary levels of education” conducted by the Education Department (1993b) in the same year, it was revealed that students found the secondary curriculum broad and they experienced difficulty with the new curriculum at the beginning of secondary one and more so towards the end of secondary one, and that pupils’ willingness to participate in extra-curricular activities in the school also dropped.

As found in these studies, students might encounter difficulties in adapting to the teaching styles of teachers, studying different curriculum, and participating in extra-curricular activities. when transferring from kindergarten to primary schools and from primary schools to secondary schools. These problems point to a potential difficulty in adopting an integrated approach. If curriculum continuity is difficult in a

subject bounded curriculum (as it was in 1993 when the Education Department's surveys were carried out) how much more of a problem might there be when teaching is based around integrated themes and projects? As mentioned in Section 2.1.2 of Chapter 2 (p.27) Lawton (1989), recognizing these problems, has argued that a good professional teacher should be able to relate his or her own teaching to the whole curriculum whether adopting a subject sequenced or inter-subject integration approach. On the other hand, Vars (1996b, p.159) suggests, "Regular meetings of subject area departments are essential, frequently including both middle school and high school staff and representatives of elementary schools wherever possible." Thus, various channels should be set up as the linkage between teachers from kindergarten and primary schools and teachers from junior secondary schools and primary schools. If possible, parents should also be approached and become involved in bridging these learning gaps.

4.2.2 The Content of an integrated curriculum

The next set of questions (Items 7-14) required respondents to answer statements related to the content of the primary curriculum in the information-based era. Table 4.3 below displays the teachers' views on which key learning areas should be the major parts of an integrated curriculum. As seen from the table only the mean of Statement 7 ($M=2.36$) was smaller than the theoretical mid-point (2.50) so that only Physical

Education was not considered to be a 'major part of an integrated curriculum'. If the rank order of the remaining means is taken to indicate the extent to which different subjects were thought to be key components, then Personal, Social and Humanities Education (M=3.14) headed the list followed by Science (M=3.13); Technology Education (M=3.04); Chinese (M=2.99); Mathematics (M=2.89), English (M=2.84) and Arts Education (M=2.64) being considered least important. Differences in means were, however, relatively insignificant.

Table 4.3: Eight key learning areas

<i>Section B: Context (Items 7-14)</i>		
*The following key learning areas should be a major part of an integrated curriculum:	Mean	S.D.
12. Personal, Social & Humanities Education	3.14	.59
9. Science	3.13	.52
11. Technology Education	3.04	.58
8. Chinese	2.99	.64
13. Mathematics	2.89	.62
14. English	2.84	.64
10. Arts Education (Art & Music)	2.64	.62
7. Physical Education	2.36	.57

*All items were originally presented randomly in the questionnaire to avoid a clustering effect.

In Section 2.3.7 of Chapter 2 (p.52), reference was made to an earlier Curriculum Development Council (CDC) study report published in 1999 where teachers were asked to indicate the ranking order of importance regarding various aspects of child development such as intellectual, moral, social, physical or aesthetic. Hong Kong teachers at that time indicated that less importance should be given to the latter two attributes. In the same way, teachers in the present study regarded Physical Education

as the least essential part of an integrated curriculum while Arts Education received the least agreement among the other learning areas where the overall means lay above the middle point in the range.

As discussed in Section 2.2.1 of Chapter 2 (p.33), Alexander (1995:16) identifies an emphasis on the core disciplines as a central feature of what he terms a “classical humanist” approach to building a curriculum where the main purpose is to initiate the child into ‘the best of the cultural heritage, defined chiefly in terms of disciplines or forms of understanding: the arts, sciences and humanities.’ However one consequence of this approach as Beane (1997) has argued is that academics often define some subject areas as ‘high status’ in seeking to advance their own specialist interests and purposes. Subjects such as physical education and arts education are seen mainly as recreational activities whose rationale within the curriculum is to stimulate both the ‘body’ and the ‘senses’ so that an individual’s mind is refreshed and he/ she is able to engage in serious thought about language and literature, mathematics and science. Beane (1997, p.102) sees this division into ‘high’ and ‘low’ status subjects as one of the main obstacles to full curriculum integration quoting John Dewey in support of the argument that once some subjects are given more weight than others the curriculum ceases to offer authentic meaningful experiences to pupils because:

All studies grow out of relations in the one great common world. When the child

lives in a varied but concrete and active relationship to this common world, his studies are naturally unified. It will no longer be a problem to correlate studies.

The teacher will not have to resort to all sorts of devices to weave a little arithmetic into the history lesson and the like. Relate the school to life, and all studies are of necessity correlated (Dewey, 1900/ 1915, p.32).

It would appear that teachers in the present study, like those who took part in the earlier CDC's study mentioned in p.98, also perceived various degrees of importance for individual key learning areas. While there is nothing intrinsically wrong in putting greater emphasis on one part of an integrated curriculum, rather than another, there is a danger that such decisions will reflect the status of different subjects so, for example, Chinese language is seen to be more important than music education. Therefore, it is very critical for Hong Kong's primary school teachers not to carry this negative legacy of classical humanism into their attempts to achieve a real form of integration.

4.2.3 Theoretical justification for curriculum integration

Table 4.4 below displays the respondents' answers to statements contrasting the relative merits of an integrated approach compared to one that is subject-bounded.

Table 4.4: Relative merits of curriculum integration

<i>Section C: Theory (Items 1-7)</i>		
In comparison with the subject-bounded curriculum, the integrated curriculum is more likely to:	Mean	S.D.
3. Facilitate links among classroom, school and daily-life learning. *	3.21	.52
1. Be a time-consuming endeavor.	3.17	.50
2. Enhance students' whole-person development. *	3.15	.53

6. Be worth providing with a large amount of resources.	3.10	.63
7. Accommodate new needs of the society. *	3.04	.50
5. Provide students with life-long learning skills and attitudes.	3.00	.49
4. Cause students to underachieve on traditional standardized tests.	<u>2.34</u>	.54

*Items were originally worded negatively in the questionnaire.

As seen from Table 4.4, the mean of Statement 4 (2.34) was the only one which was smaller than the theoretical mid-point (2.50). The respondents disagreed with the statement “in comparison with the subject-bounded curriculum, the integrated curriculum is more likely to cause students to underachieve on traditional standardized tests” but agreed with all the other statements. This finding echoed with the arguments on student achievement as raised by Glatthorn & Foshay (1991), Beane (1997) and Vars (1995, 1996a) in Section 2.2 of Chapter 2 (p.32). All of them have claimed that in an integrated curriculum program students do as well or sometimes even better than students do in traditional programs; and that the results of traditional measures of academic achievement of the students follow the same pattern.

Statement 3 “In comparison with the subject-based curriculum, the integrated curriculum is more likely to facilitate links among classroom, school and daily-life learning” (M=3.21) received the strongest agreement among all statements. Moreover, findings from Statements 2 & 5 showed respondents’ agreement that integrated curriculum is more likely to enhance students’ whole-person development (mean=3.15) and provide students with life-long learning skills and attitudes (mean=3.00). These findings were also aligned with the argument from Dewey’s social learning theory in

Section 2.2.1 of Chapter 2 (p.35), Vygotsky's zone of proximal development, and theories of brain research and multiple intelligences in Section 2.2.2 of Chapter 2 (p.35) which support curriculum integration. As a result, in this study, teachers generally agreed that students benefit from an integrated curriculum.

However, findings of Statements 1 & 6 showed respondents' agreement that integrated curriculum was more likely to be a time-consuming endeavor (mean=3.17), and worth providing with a large amount of resources (mean=3.10). As such, teachers anticipated that curriculum integration needed the input of time and resources.

Lastly, with reference to Statement 7 in Table 4.4, in comparing the subject-bounded curriculum with the integrated curriculum, this item concerned the needs of the society. Findings from the item showed respondents' agreement that an integrated curriculum was more likely to accommodate the needs of the society (mean=3.04). In addition, these teachers' perceptions were further echoed in the general findings of interviews as identified in Section 5.5 of the next chapter.

4.2.4 Impacts on teachers in schools

Referring to Table 4.5, on the practice of curriculum integration, these items dealt with the various impacts on teachers in schools:

Table 4.5: Impacts on teachers in schools

<i>Section D: Practice (Items 1-6)</i>		
Regarding implementing an integrated curriculum:	Mean	S.D.
6. You are frustrated by too many innovations in primary schools. *	3.51	.61

5. You have extra workload.	3.36	.55
1. You would like to get more information.*	3.26	.50
3. You would like to work collaboratively with other teachers (e.g. team teaching).	2.77	.58
2. You feel equipped to participate. *	2.59	.58
4. You are no longer a subject specialist.	2.43	.61

*Items were originally worded negatively in the questionnaire.

Respondents agreed that they are frustrated by too many innovations in primary schools (mean=3.51); and that they have extra workload from implementing curriculum integration (mean=3.36). On teachers' work overload, Byrne (1999, p.23) points out after in depth review of relevant literature:

Teachers have consistently cited work overload as a major stressor in their job; important factors include excessive paperwork, oversized classes comprising students of heterogeneous academic abilities, imposed time constraints, and the need to teach courses that are outside their particular skill area. Empirical testing of these aspects of perceived work overload by teachers has provided ample evidence that they contribute to teacher stress and burnout in general.

Hence, regarding the implementation of curriculum integration, teachers were very worried about the stress including extra workload alongside with too many reforms in primary schools. At least, for the present situation in Hong Kong, the potential for teacher burnout may be great and deserves the urgent attention of school administrators as well as policy-makers.

On the practice of curriculum integration, Items 3 & 4 dealt with the impacts on wider

school context. Regarding the involvement in 'team teaching' the respondents indicated the second least agreement (mean=2.77) among the other agreeable items. As such, in this present study, it is crucial to know whether a majority of teachers were willing to be involved in working collaboratively with other teachers such as team teaching. However, they disagreed with the view that they are no longer a subject specialist (mean=2.43) regarding the implementation of curriculum integration. As mentioned in Section 2.2.3 of Chapter 2 (p.39), Hargreaves (1994) points out that those teachers identifying themselves as subject specialists are reluctant to move outside subject boundaries. This implies that, regarding the implementation of curriculum integration, teachers kept on identifying their status as subject specialists and the anticipated conflicts among teachers from different subject departments could not be minimized.

Finally, Items 1 & 2 dealt with the impacts on teachers. Respondents agreed that they would like to get more information on the innovation (mean=3.26). For this finding, it may be argued that teachers were active enough as to want to know more about the innovation or teachers are not well-informed of or equipped for the innovation. Regarding feeling equipped for participating in the innovation, the respondents indicated the least agreement (mean= 2.59) among the other agreeable items. It may be therefore essential for the policy-makers to find out whether a majority of teachers are

well equipped for the change and are willing to be involved in the implementation.

4.2.5 Approaches to curriculum integration

This group of items in Table 4.6 concerned the theory of curriculum integration using different approaches/levels. Respondents agreed that students benefit most in all four different approaches to curriculum integration. They were integration of subjects (mean=3.07), thematic approach disregarding subject boundaries (mean=3.04), cross-disciplinary approach (mean=3.02), open and flexible curriculum frameworks (mean=2.87) and modular approach (mean=2.76).

Table 4.6: Approaches to curriculum integration

<i>Section C: Theory (Items 8-12)</i>		
*Students benefit most in an integrated curriculum by:	Mean	S.D.
9. Integration of several subjects (e.g. General Studies programme).	3.07	.50
11. Real-life thematic approaches that ignore subject boundaries.	3.04	.62
10. Cross-curricular approaches involving several subjects (e.g. Civic, Moral, Consumer, Environmental & Sex Education).	3.02	.55
12. Open and flexible frameworks with key learning areas rather than teaching according to the textbooks.	2.87	.64
8. A modular approach within individual subjects.	2.76	.48

*All items were originally presented randomly in the questionnaire to avoid a clustering effect.

As mentioned in Section 2.1.2 of Chapter 2 (p.28), Drake has identified a 'continuum of integration'. It may be argued that the nearer the end of the continuum of integration, the more student benefits can be identified. Among the four alternatives, a modular approach within individual subjects received the least agreement when compared with the others. This implies that subject boundaries and integration within one single

subject were perceived by respondents of the least student benefit. Finally, perhaps the open, flexible and coherent curriculum framework involving the key learning areas as proposed by the Curriculum Development Council is not so familiar to the teachers as it was considered the second least in terms of student benefits.

4.2.6 Difficulties in teaching integrated curriculum

With regard to Table 4.7, on the practice of curriculum integration, this group of items identified the most difficult tasks in teaching an integrated curriculum. It was found that developing instructional plans (mean=3.33), catering for individual learning needs (mean=3.24), and assessing student learning using various methods of assessment (mean=3.12) were the most difficult tasks for the teachers. In contrast, using Information and Communication Technologies (ICT) in teaching (mean=2.97), structuring activities to help students ask questions (mean=2.87), observing what was happening regarding student learning (mean=2.81), and getting students to learn in groups (mean=2.65) were perceived as less difficult tasks.

Table 4.7: Difficult tasks

<i>Section D: Practice (Items 7-15)</i>		
*When teaching an integrated curriculum, your most difficult task is:	Mean	S.D.
7. Developing instructional plans.	3.33	.62
13. Catering for individual learning needs.	3.24	.55
15. Assessing student learning using various methods of assessment.	3.12	.61
14. Using information and communication technology.	2.97	.63
11. Structuring activities to help students ask questions.	2.87	.58
12. Observing what is happening regarding student learning.	2.81	.65

10. Getting students to learn in groups.	2.65	.61
8. Motivating student learning.	2.43	.64
9. Instructing students directly.	2.41	.58

*All items were originally presented randomly in the questionnaire to avoid a clustering effect.

Regarding difficulties in developing instructional plans for integrated curriculum, as

mentioned in Section 2.3.1 of Chapter 2 (p.42), Beane (1997) has suggested some

features in the instructional design of integrated curriculum. Curriculum can be

organized around real life problems and issues of personal and social significance.

Learning experiences can be organized in the context of organizing center. Knowledge

can be developed to address the organizing center; and finally emphasis can be placed

on the themes or projects, questions, and activities related to the organizing center.

Organizing centers can be topics that are already contained within the separate subjects,

social issues, concerns of students themselves, appealing topics, and process-oriented

concepts such as “Change”, “Systems” or “Cycles”.

Furthermore, on dealing with the diversity in the classroom by means of curriculum

integration, Drake (1998, p.173) argues the importance of students’ active

participation:

Integrated curriculum has been hailed as one way to ensure an inclusive classroom.

The rationale is that when we change the way we teach, we will be able to meet the

needs of many more students. A relevant curriculum where students actively

participate is more motivating to all students.

With reference to Section 2.3.3 of Chapter 2 (p.45), Ryan (1994), Wolfinger & Stockard (1997) and Drake (1998) all support the use of authentic assessment such as portfolios and projects methods in teaching integrated curriculum. Thus, if there are uses of the organizing centers for reality-based learning, changes for appropriate teaching strategies for individual learning needs, and introduction of portfolios/ projects for authentic assessment in teaching integrated curriculum, it is possible for teachers to solve the problems in teaching an integrated curriculum.

On the other hand, other items such as motivating student learning (mean=2.43) and instructing students directly (mean=2.41) were not perceived by teachers as the most difficult tasks in teaching integrated curriculum. Since direct instruction has been commonly used by Hong Kong's primary school teachers, they are familiar with this kind of instructional approach and consequently do not find it difficult to apply in teaching. Another interesting finding may be attributed to the advantages of integrated curriculum. Referring to the description of Lipson et al. (1993) on the positive effects of curriculum integration as mentioned in Section 2.2 of Chapter 2 (p.32), depth and breadth in learning, as well as positive attitudes, are promoted by curriculum integration in students. That is why teachers disagreed with the saying that motivating student learning is the most difficult task in teaching an integrated curriculum.

4.2.7 Professional development of teachers

The respondents agreed with all items in the group (Table 4.8) regarding the professional development of teachers. On one hand, “Full-time block-release courses” received much stronger agreement (mean=3.39) than “Part-time in-service courses” (mean=2.63). On the other hand, “School-based training in which teachers work collaboratively to develop effective practice” (mean=3.16) received similar agreement as “School-based training with external support” (mean=3.12).

Table 4.8: Professional development

<i>Section D: Practice (Items 27-30)</i>		
*Regarding teaching an integrated curriculum, professional development in which teachers benefit most is:	Mean	S.D.
30. Full-time block-release courses.	3.39	.66
28. School-based training in which teachers work collaboratively to develop effective practice.	3.16	.63
27. School-based training with external support.	3.12	.65
29. Part-time in-service courses.	2.63	.73

*All items were originally presented randomly in the questionnaire to avoid a clustering effect.

In Section 2.3.4 of Chapter 2 (p.47), Kelly (1989) argues that professional development must be school-based, teachers’ ability to evaluate the effectiveness of curriculum and the question of what kind of external help they need are crucial. Lawton (1989) also asserts that the desire of teachers to be treated as professionals rather than as state functionaries, has encouraged a tendency to look for ways in which teachers could solve their own professional problems by school-based curriculum development rather than by reacting to more remote initiatives. The implication is clear that teachers prefer full-time professional programs rather than the part-time programs. Furthermore, as

interpreted from the findings, there was no significant difference between school-based training with or without external support.

4.2.8 Factors for successful implementation

In this final set of items (Table 4.9), the factors for the success of implementing curriculum integration were dealt with. Respondents agreed to all statements. As mentioned in Section 2.3.7 of Chapter 2 (p.50), Zandt & Albright (1996) point out those personal, interpersonal and institutional factors which either promote or hinder the development of interdisciplinary curricula. It is rather interesting to note from the findings that, in comparison, there was a tendency towards showing the strongest agreement to personal factors such as “More clerical support for teachers” (mean=3.70), moderate agreement to interpersonal factors such as “A climate of cooperation among colleagues in schools”(mean=3.51), and then the least agreement to institutional factors including “Consistency in policy”(mean=3.28). Differences in means were, however, relatively insignificant.

Table 4.9: Factors for success

<i>Section D: Practice (Items 16-26)</i>		
*The success of implementing an integrated curriculum mainly depends on:	Mean	S.D.
25. More clerical support for teachers.	3.70	.56
24. A better teacher-student ratio.	3.66	.55
26. Further professional development of teachers.	3.61	.53
22. Teachers' recognition of the curriculum innovation.	3.51	.53
21. A climate of cooperation among colleagues in schools.	3.51	.53
17. More time for the reform.	3.49	.56
20. Leadership in school.	3.42	.53

23. Public recognition of teachers' efforts.	3.39	.59
19. A centralised resource center.	3.32	.56
18. A reform of the existing public examination system.	3.31	.57
16. Consistency in policy.	3.28	.58

*All items were originally presented randomly in the questionnaire to avoid a clustering effect.

Therefore, it seems that teachers were more concerned with personal factors such as reducing the workload which the innovation brought. As Goodlad and Su (1996, p.330) argue on the integration of curriculum, "For many teachers, the time and energy involved in the logistics outweigh the perceived advantages." Teachers were also concerned with further professional development and that can also be regarded as a personal factor. If it is true that teachers mind the personal factors more than the other factors, it should be a critical issue for the policy makers to apply suitable solutions in making good use of these personal factors to promote the development of curriculum integration in Hong Kong's primary schools.

As for the responses to the open-ended question in Section E of the questionnaire, they are summarized in Table 4.10 below. Comparatively speaking, teachers considered teacher knowledge of curriculum integration, collaborative culture in schools, use of ICT in teaching and learning, concrete support provided by the Education Department (ED)/ Curriculum Development Institute (CDI)/ other experts, need for professional development, and learning lessons from previous reforms as the important factors to help the implementation of curriculum integration.

Table 4.10: Suggestions for the implementation of curriculum integration

Category	Item	Frequency
Teacher	Teacher knowledge of curriculum integration	11
	Teacher recognition of the need to implement curriculum integration	2
	Teachers' basic/ general knowledge of all the subjects/disciplines	2
	Teacher autonomy in curriculum & instructional planning	1
School	Collaborative culture in schools	8
	Leadership of school heads	2
	School management's active role	2
	Networking among schools	1
Teaching	Use of ICT in teaching and learning	8
	Starting from the lower primary first and then the upper level	2
	Curriculum integration in a particular period of time	1
	Flexibility in curriculum planning	1
	The need for more "Project Work"	1
	Cutting the overlapping	1
Support & Resources	Concrete support provided by ED/ CDI/ experts	12
	Improving the "teacher to student" ratio	3
	Parents' understanding and recognition	2
	Sufficient time/spare time for teaching preparation/team teaching	1
Professional development	The need for professional development	13
	In-school professional development by ED/CDI/expert	3
	School-based professional development by ED/CDI/expert	2
Policy making	Learning lessons from previous reforms	9
	Consistency in policy-making	2
	Establishment of linkage between curriculum integration and public examination system	2
	Conduct pilot study in some schools	1
	Sufficient time for change	1

Clandinin and Connelly (1996) argue that government officials or academics always desire to create ideal curriculum materials which teachers may find unusable. Therefore, it is necessary for the Education Department to help teachers produce some workable materials that can be used according to classroom situations and the reality of primary schools. The need is also in line with teachers' request for concrete support provided by

ED/ CDI/ experts and that for professional development.

In addition, in responding to the open-ended question, teachers raised an important factor regarding policy making as “learning lessons from previous reforms”. Regarding lessons learnt from the Target Oriented Curriculum, Morris (1999, p.19-20) argues:

From the perspective of most schools their concerns focused on the impact on their workload, and the logistics of implementing change..... There were many tensions and conflicts that confronted the TOC, especially the prevailing pedagogic patterns, the strong subject based culture of the curriculum, the competitive and selective role of schooling, and the authoritarian organizational culture of many schools. Its implementation thus required fundamental and radical changes to long-established arrangements and this inevitably caused tension and conflict. many principals, especially those from more innovative schools, described their reaction to the delabelling of the TOC in terms of a sense of betrayal and similar sentiments were expressed in a more recent study. Their experience has reinforced the perception that the government lacks long term commitment and that new initiatives are symbolic, short term, transitory gestures in response to changes of the political context and policy personnel, and that inertia or surface changes in schools are the optimal response to policy initiatives.

Therefore, in order to avoid surface changes in the implementation of curriculum

integration, consistency in policy-making, sufficient time for change, long term planning, teachers' knowledge and competence, relief of teachers' workload, and a collaborative culture in schools should be observed.

Moreover, teachers also highlighted the use of ICT in teaching integrated curriculum.

Besides the benefits of using ICT in learning and teaching as mentioned in Section 2.3.2 of Chapter 2 (p.44) by Drake (1998) and Galton et al. (1999), Leshin (1998) points out:

We should view these new technologies as bringing in new tools to support and enhance educational change. Computer networks such as the Internet offer new tools for information access, information sharing, and communication. Traditional teaching and learning practices cannot be used with these new sources of information. Students must become active in the learning process, as they go out onto the networks and search for information sources. On their journey students have the opportunities to interact, communicate, and collaborate with many different individuals of all ages. These new information sources eliminate passive learning and open new doors of teaching and learning from global resources. No longer is the teacher the sole source of information. The teacher's role changes from the dispenser of information to a learning guide. (p.5)

To sum up, changing the teacher's role by applying ICT as a tool for teaching and

learning an integrated curriculum offers several advantages. Such technology matches with the rationale and features of student-centred learning in an integrated curriculum regarding catering for individual learning differences, learning how to learn, holistic learning, and problem solving.

4.3 Examining general differences within the sample

In order to find out whether there was a significant difference between the groups within the sample, Independent-Samples T Test was used to analyse the questionnaire findings. It compared means for two groups of cases. A low significance value for the t test (less than 0.01) indicated that there was a significant difference between the two group means.

4.3.1 Gender

Table 4.11 shows there was a significant difference between female and male teachers regarding clerical support for teachers.

Table 4.11: Gender

<i>T-test for Equality of Means: Independent Sample & Statement</i>	<i>Mean</i>	<i>Sig.</i>
Gender & Item D25: The success of implementing an integrated curriculum mainly depends on more clerical support for teachers.	Female: 3.64 Male: 3.90	.003

Male teachers indicated stronger agreement with “The success of implementing an integrated curriculum mainly depends on more clerical support for teachers” than female teachers. Since clerical support helps to relieve the workload of teachers, it may imply that male teachers are more concerned with the heavy workload brought by

teaching an integrated curriculum than the female teachers and, consequently, are more eager to have additional clerical support for the task.

4.3.2 Teacher training

Table 4.12 shows there was a significant difference of agreement between certificated teachers and graduated teachers with various statements. In this study, graduated teachers indicated stronger agreement than the certificated teachers regarding:

- There is some overlapping among the subjects in the Primary school curriculum;
- There is a need to bridge the learning gaps between the 'Upper Primary' and 'Secondary' school curriculum;
- The success of implementing an integrated curriculum mainly depends on further professional development of teachers; and
- Teaching an integrated curriculum, professional development in which teachers benefit most is school-based training in which teachers work collaboratively to develop effective practice.

Table 4.12: Teacher training

<i>T-test for Equality of Means: Independent Sample & Statement</i>	<i>Mean</i>	<i>Sig.</i>
Teacher training & Item B1: In the information-based era, there is some overlapping among the subjects in the Primary school curriculum.	Teacher's Cert: 2.96 BEd: 3.22	.002
Teacher training & Item B4: In the information-based era, there is a need to bridge the learning gaps between the 'Upper Primary' and 'Secondary' school curriculum.	Teacher's Cert: 3.17 BEd: 3.51	.000
Teacher training & Item D26: The success of implementing an integrated curriculum	Teacher's Cert: 3.53 BEd: 3.78	.006

mainly depends on further professional development of teachers.		
Teacher training & Item D28: Regarding teaching an integrated curriculum, professional development in which teachers benefit most is school-based training in which teachers work collaboratively to develop effective practice.	Teacher's Cert: 3.04 BEd: 3.39	.002

In Hong Kong, graduated teachers receive more in depth teacher education in both full-time mode or in-service mode. In general, they teach upper primary classes and they are responsible for the major duties in schools. They are assumed to be more professional and knowledgeable about the implementation of education innovations than the non-degree holders – the certificated teachers. It also seems that graduated teachers are more positive about the implementation of curriculum integration in various aspects including the recognition of benefits for professional development. If the upgrading of academic qualification, in addition to other reasons of course, helps the development of curriculum integration, it implies there is an urgent need to upgrade all the certificated teachers in primary schools to graduated teachers.

4.3.3 Main teaching group

Table 4.13 shows there was a significant difference of agreement regarding “When teaching an integrated curriculum, your most difficult task is motivating student learning”.

Table 4.13: Main teaching group

<i>T-test for Equality of Means: Independent Sample & Statement</i>	<i>Mean</i>	<i>Sig.</i>
Main teaching group & Item D8: When teaching an integrated curriculum, your most difficult task is motivating student learning.	Upper Primary: 2.31 Lower Primary: 2.64	.005

Teachers mainly teaching lower primary indicated agreement ($M=2.64$) while teachers mainly teaching upper primary indicated disagreement ($M=2.31$) with the statement. In teaching integrated curriculum, if it is true that motivating student learning in lower primary classes is more difficult than that in upper primary classes, it implies there is a need to modify the relevant teaching strategies/ approaches regarding coping with, say, the cognitive development of students.

4.3.4 Main teaching subject

Table 4.14 shows there was a significant difference of agreement with various statements between teachers teaching or not teaching various subjects:

Table 4.14: Main teaching subject

<i>T-test for Equality of Means: Independent Sample & Statement</i>	<i>Mean</i>	<i>Sig.</i>
Main teaching subject & Item D14: When teaching an integrated curriculum, your most difficult task is using information and communication technology.	Chinese(No): 2.75 Chinese(Yes): 3.11	.001
Main teaching subject & Item C4: In comparison with the subject-based curriculum, the integrated curriculum is more likely to cause students to underachieve on traditional standardized tests.	English(No): 2.46 English(Yes): 2.17	.001
Main teaching subject & Item C8: Students benefit most in an integrated curriculum by a modular approach within individual subjects.	English(No): 2.85 English(Yes): 2.61	.005
Main teaching subject & Item B7: The following key learning area should be a major part of an integrated curriculum: Physical education	Others(No): 2.42 Others(Yes): 2.00	.004

In this study, Chinese teachers indicated stronger agreement with the statement “When teaching an integrated curriculum, your most difficult task is using information and communication technology” than teachers not teaching Chinese.

This may indicate that Chinese teachers realise more difficulties in using ICT in teaching than the other teachers. As such, there is an urgent need to provide teachers teaching Chinese with further professional development regarding the use of ICT in teaching an integrated curriculum.

English teachers indicated stronger disagreement to “In comparison with the subject-bounded curriculum, the integrated curriculum is more likely to cause students to underachieve on traditional standardized tests” than teachers not teaching English; and they indicated less agreement to “Students benefit most in an integrated curriculum by a modular approach within individual subjects” than teachers not teaching English.

This implies that English teachers in Hong Kong primary schools are more positive towards teaching integrated curriculum regarding student performance than other teachers. In the present situation of primary schools, these English teachers are not so in favour of using a modular approach in teaching integrated curriculum.

Teachers teaching Religious Studies, Library Studies and Putonghua indicated stronger disagreement with “The following key learning area should be a major part of an integrated curriculum: Physical Education” than teachers not teaching these subjects.

Teachers teaching the so-called “traditional minor subjects” indicated even stronger disagreement with regarding Physical Education as a major part of an integrated curriculum. It implies that this kind of teacher belief influenced by the negative legacy

of classical humanism may hinder the development of curriculum integration in primary schools.

4.3.5 Main teaching experience of integrated curriculum

Table 4.15 shows there was a significant difference of agreement with various statements between teachers teaching or not teaching by means of various approaches towards integrated curriculum:

Table 4.15: Main teaching experience of integrated curriculum

<i>T-test for Equality of Means: Independent Sample & Statement</i>	<i>Mean</i>	<i>Sig.</i>
<u>Main teaching experience of integrated curriculum & Item C11:</u> Students benefit most in an integrated curriculum by real-life thematic approaches that ignore subject boundaries.	Real-life Thematic Approach(No): 2.96 Real-life Thematic Approach(Yes): 3.28	.008
<u>Main teaching experience of integrated curriculum & Item D10:</u> When teaching an integrated curriculum, your most difficult task is getting students to learn in groups.	Real-life Thematic Approach(No): 2.75 Real-life Thematic Approach(Yes): 2.39	.002

Teachers teaching Real-life Themes indicated stronger agreement with the statement “Students benefit most in an integrated curriculum by real-life thematic approaches that ignore subject boundaries” than teachers not teaching Real-life Themes. They also disagreed with “When teaching an integrated curriculum, your most difficult task is getting students to learn in groups” while teachers not teaching Real-life Themes agreed with the statement.

Therefore, teachers teaching real-life themes regarded that students benefited most in this approach and they also found less difficulty in motivating students to learn in groups. This implies that a real-life thematic approach associates well with learning

activities in groups; and the approach is well supported by teachers involved.

4.3.6 Type of schooling

Table 4.16 shows, in this study, that there was a significant difference between teachers from different types of schooling. Teachers from Bi-sessional schools indicated agreement to “In the information-based era strong subject boundaries are barriers to relating school curriculum to real-life.” while teachers from whole-day schools indicated disagreement.

Table 4.16: Type of schooling

<i>T-test for Equality of Means: Independent Sample & Statement</i>	<i>Mean</i>	<i>Sig.</i>
Type of schooling & Item B5: In the information-based era strong subject boundaries are barriers to relating school curriculum to real-life.	Bi-sessional: 2.77 Whole-day: 2.44	.008

There may be more time, resources and flexibilities for teachers in the whole-day schools to apply various teaching approaches when they teach. As such, whole-day schooling allows the use of a student-centred approach such as the inquiry method that relates student learning to daily real-life contexts. Teachers in bi-sessional schools, on the other hand, may face the reality of a limitation of teaching time, resources and flexibility. As a consequence, they have little choice other than applying a traditional teacher-centred approach such as direct instruction as to finish the teaching syllabus. This may be the reason why teachers in bi-sessional schools tended to agree that strong subject boundaries were barriers to relating school curriculum to real-life. Thus, there is an implication that whole-day schooling may be a positive factor for the

implementation of curriculum integration.

4.3.7 School district

Table 4.17 shows there was a significant difference of agreement with various statements between teachers from schools in different districts/regions. Teachers from the New Territories indicated stronger agreement than teachers from Hong Kong Island and Kowloon with the following: “The following key learning area should be a major part of an integrated curriculum: Arts education.” and “The success of implementing an integrated curriculum mainly depends on a climate of cooperation among colleagues in schools.”

Table 4.17: School district

<i>T-test for Equality of Means: Independent Sample & Statement</i>	<i>Mean</i>	<i>Sig.</i>
School district & Item B10: The following key learning area should be a major part of an integrated curriculum: Arts education (art & music)	HK Island & Kowloon: 2.51 New Territories: 2.79	.010
School district & Item D21: The success of implementing an integrated curriculum mainly depends on a climate of cooperation among colleagues in schools.	HK Island & Kowloon: 3.41 New Territories: 3.64	.010

As a result, teachers from the schools in New Territories may be more supportive to including Arts Education as a major part of an integrated curriculum; and may be more supportive towards fostering a collaborative culture in school. As such, these may be positive factors for the development of curriculum integration in Hong Kong’s rural primary schools. On the performance and practice in small rural primary schools,

Galton (1993, p.12) argues “In summary, therefore, the evidence, such as it is, seems to support the idea of greater social cohesiveness among children in small schools” and “Thus small schools, when working well, would appear to exert a positive influence in the development of their pupils’ self concepts”. Although Galton’s argument is restricted to the students in small primary schools in the United Kingdom, there may be some implications and insights to the implementation of curriculum integration in Hong Kong’s rural primary schools. Therefore, if there are close relationships between students and teacher as well as learning and teaching, further studies of a similar nature on teachers need to be conducted in the local context.

4.3.8 Years of primary school teaching

In order to find out the group differences in the agreement with various statements among teachers having different years of primary school teaching experience, the data was also analysed with one-way ANOVA. The total variation was partitioned into two components. The final column in Table 4.18 indicates the significance of the F ratios. Small significance values ($<.01$) indicated group differences. If the significance level was less than .01, at least one of the groups differed from the others. The results of the analysis (ANOVA) are presented in the Table 4.18 below. At least one group of teachers indicated different agreement from the others regarding the statement “Students benefit most in an integrated curriculum by integration of several subjects”.

Table 4.18: Years of primary school teaching (one-way ANOVA)

<i>Independent Sample & Statement</i>	<i>Mean</i>	<i>Sig.</i>
Years of primary school teaching & Item C9:	Less than 6: 2.50	.006
Students benefit most in an integrated curriculum by integration of several subjects (e.g. General Studies programme).	6-10: 3.10	
	11-15: 3.00	
	16-20: 3.13	
	More than 20: 3.23	

Then post hoc comparison was subsequently used to determine which group(s) of teachers indicated different agreement. A 99% confidence interval was constructed for each difference. The mean difference was regarded as significant at the .01 level. Table 4.19 shows that teachers having more than 20 years of teaching experience indicated stronger agreement with the statement “Students benefit most in an integrated curriculum by integration of several subjects” than the teachers having less than 6 years of experience.

Table 4.19: Years of primary school teaching (Post Hoc comparisons)

<i>Multiple Comparison & Statement</i>	<i>Mean</i>	<i>Sig.</i>
Years of primary school teaching & Item C9:		.003
Students benefit most in an integrated curriculum by integration of several subjects (e.g. General Studies programme).	Less than 6: 2.50 More than 20: 3.23	

In Hong Kong’s primary schools, General Studies (an integration of Social Studies, Primary Science and Health Education) was officially introduced in 1996. Teachers having more than 20 years of teaching experience may be assumed to be knowledgeable on both the integrated General Studies and the other ‘old’ subjects; while teachers having less than 6 years of teaching experience may have less knowledge about these. It can be interpreted that experienced teachers were in favor of

the ‘new’ subject as compared with the old one; or it was regarded that there were some advantages regarding student benefits in the integrated subject – General Studies. There may be an implication here to study whether the current General Studies programme is a good example for the possible integration of other relevant subjects in the primary school curriculum.

4.4 Examining differences within the sample - relationships between the impacts on teachers

In order to examine the partial correlation among the statements in Section D (Items 1 to 6) regarding teachers’ perceptions of the various impacts on teachers in the implementation of curriculum integration in schools, the ordinal symmetric measure was used to analyse the data. It indicates the significance, strength and direction of the relationship between two statements in the group controlled by the third variable – various groups in the sample. A low significance value (less than 0.01) indicated that there was a relationship between the two statements for individual groups in the sample. As a consequence, some significant relationships were identified between certain items. First, on teachers’ confidence in facing curriculum integration, Table 4.20 below shows the positive partial correlations between “Regarding implementing an integrated curriculum, you would like to get more information” and “You feel equipped to participate” controlled by various independent variables. Amongst the groups, a

relatively strong positive relationship (value of the test statistics $>.500$) between the two statements was found in both male teachers (value of the test statistics = .545) and Art teachers (value of the test statistics = .510). This suggests the argument that both male teachers and Art teachers wanted to know more about curriculum integration although they felt equipped to participate. They could be assumed as having more active and positive attitudes toward the innovation.

Table 4.20: Teachers' confidence in facing curriculum integration

<i>Statements: Regarding implementing an integrated curriculum,</i> <i>Item D1: You would like to get more information.</i> <i>Item D2: You feel equipped to participate.</i> <i>Controlled by:</i>	<i>Value</i>	<i>Sig.</i>
Gender: Male	.545	.002
Main teaching subject: Art (Yes)	.510	.001

Second, on teachers' willingness to work collaboratively with other teachers, Table 4.21 below shows the positive partial correlation between “Regarding implementing an integrated curriculum, you would like to get more information.” and “You would like to work collaboratively with other teachers” controlled by various independent variables. Amongst the groups, a relatively strong positive relationship between the two statements was found in male teachers (value of the test statistics = .530). If this is the case, the male teachers showed their willingness to work collaboratively with other teachers such as teaming teaching while they also prepared to learn more through the collaboration.

Table 4.21: Teachers' willingness to work collaboratively with other teachers

<i>Statements: Regarding implementing an integrated curriculum, Item D1: You would like to get more information. Item D3: You would like to work collaboratively with other teachers (e.g. team teaching). Controlled by:</i>	<i>Value</i>	<i>Sig.</i>
Gender: Male	.530	.003

Third, on teachers' readiness for involvement in curriculum integration, Table 4.22 below shows the positive partial correlations between "Regarding implementing an integrated curriculum, you feel equipped to participate" and "You would like to work collaboratively with other teachers" controlled by various independent variables. Amongst the groups, a relatively strong positive relationship between the two statements was found in male teachers (value of the test statistics = .577); teachers not teaching Chinese (value of the test statistics = .605); teachers not teaching Maths. (value of the test statistics = .537); teachers teaching Music (value of the test statistics = .582); teachers teaching Modular Approach within subjects (value of the test statistics = .515); and teachers not teaching Cross-curricular Approach (value of the test statistics = .500). It may entail that the above-mentioned groups of teachers were more ready for participating in the innovation than the other teachers while they were also prepared to work collaboratively with the others.

Table 4.22: Teachers' readiness for involvement in curriculum integration

<i>Statements: Regarding implementing an integrated curriculum, Item D2: You feel equipped to participate. Item D3: You would like to work collaboratively with other teachers (e.g. team teaching). Controlled by:</i>	<i>Value</i>	<i>Sig.</i>
Gender: Male	.577	.001
Main teaching subject: Chinese (No)	.605	.000
Maths. (No)	.537	.000
Music (Yes)	.582	.002
Main teaching experience of integrated curriculum: Modular Approach within subjects (Yes)	.515	.000
Cross-curricular Approach (No)	.500	.000

Fourth, on teachers' stress related to curriculum integration, Table 4.23 shows the positive partial correlations between "Regarding implementing an integrated curriculum, you have extra workload" and "You are frustrated by too many innovations in primary schools" controlled by various independent variables. Amongst the groups, a relatively strong positive relationship between the two statements was found in male teachers (value of the test statistics = .550); teachers having 6-10 years of teaching experience (value of the test statistics = .568); Maths. teachers (value of the test statistics = .510); Arts teachers (value of the test statistics = .660); teachers not teaching other subjects such as Religious Studies/ Library Studies/ Putonghua (value of the test statistics = .517); teachers teaching Real-life Thematic Approach (value of the test statistics = .566); teachers from Whole-day schools (value of the test statistics = .523); and teachers from the New Territories (value of the test statistics = .509). The implication is that these groups of teachers felt that they were under more stress than the

other groups. One interesting point is that teachers not teaching Religious Studies/ Library Studies/ Putonghua, who represented the majority of teachers in the sample, felt the stress coming from both extra workload and too many innovations in primary schools.

Table 4.23: Teachers' stress related to curriculum integration

<i>Statements: Regarding implementing an integrated curriculum, Item D5: You have extra workload. Item D6: You are frustrated by too many innovations in primary schools. Controlled by:</i>	<i>Value</i>	<i>Sig.</i>
Gender: Male	.550	.002
Years of primary school teaching: 6-10 years	.568	.000
Main teaching subject: Maths. (Yes)	.510	.000
Art (Yes)	.660	.000
Others subjects (No)	.517	.000
Main teaching experience of integrated curriculum: Real-life Thematic Approach (Yes)	.566	.000
Type of schooling: Whole-day	.523	.000
School district: New Territories	.509	.000

Fifth, on teachers' status of being a subject specialist in the implementation of curriculum integration, Table 4.24 below shows the negative partial correlations between "You are no longer a subject specialist" and "You would like to work collaboratively with other teachers" controlled by various independent variables. Amongst the groups, a relatively strong negative relationship (value of the test statistics < -.500) between the two statements was found in teachers teaching other subjects such as Religious Studies, Library Studies and Putonghua (value of the test statistics = -.625).

This may suggest the argument that these teachers would not like to work collaboratively with other teachers if they were no longer a subject specialist and vice versa. They could be assumed as having more desire for keeping their status of being a subject specialist.

Table 4.24: Teachers' status of being a subject specialist

<i>Statements: Regarding implementing an integrated curriculum, Item D4: You are no longer a subject specialist. Item D3: You would like to work collaboratively with other teachers. Controlled by:</i>	<i>Value</i>	<i>Sig.</i>
Main teaching subject: Other subjects (Yes)	-.625	.007

Lastly, on teachers' frustration coming from the implementation of curriculum integration, Table 4.25 below shows the negative partial correlations between "You are frustrated by too many innovations in primary schools" and "You would like to work collaboratively with other teachers" controlled by various independent variables. Amongst the groups, a relatively strong negative relationship between the two statements was found in teachers having more than 20 years of primary school teaching experience (value of the test statistics = -.597). This may suggest the argument that these teachers would not like to work collaboratively with other teachers if they were frustrated by too many innovations in primary schools and vice versa. They could be assumed as having more frustration coming from the implementation of curriculum integration.

Table 4.25: Teachers' frustration coming from curriculum integration

<i>Statements: Regarding implementing an integrated curriculum,</i>	<i>Value</i>	<i>Sig.</i>
<i>Item D6: You are frustrated by too many innovations in primary schools</i>		
<i>Item D3: You would like to work collaboratively with other teachers.</i>		
<i>Controlled by:</i>		
Years of primary school teaching:		
More than 20 years	-.597	.002

In summary, the analysis of differences within the sample revealed no strong trends although there were some among individual groups of teachers. This may suggest, overall, that the general findings of the questionnaire survey apply to most teachers. As such, these findings can be used as the reference for policy making in the implementation of curriculum integration in Hong Kong's primary schools. To conclude, in Chapter 4, findings of the questionnaire survey have been discussed and analyzed with reference to the general findings, differences within the sample and the responses to the open-ended question. Hence, the findings of the interviews will be put forward in the next chapter.

Chapter 5: The Interview Findings

5.1 Semi-structured interview findings

Six key informants representing teachers who occupied key positions in primary schools were interviewed; they included: Extra-Curricula Activities coordinator, Curriculum Development coordinator, Information Technology coordinator, Civic Education coordinator, Class Teacher and Subject Head. The background information and responsibilities of the interviewees have been illustrated in Table 3.2 in Section 3.6.1 of Chapter 3 (p.82).

5.2 Defining curriculum integration

The key informants were asked, at the beginning of the interviews, how they would explain the term “curriculum integration” to a parent or someone who was not an education specialist.

The Extra-Curricula Activities coordinator said that curriculum integration is a combination of different subjects that have similar contents:

“It is the combination of different subjects which have similar contents. I would like to tell them that ‘curriculum integration’ is putting the main features of different subjects together to form the curriculum. Students are occupied with different kinds of learning activities, which link with students’ daily-life experience.”

The Class Teacher shared similar views with the Extra-Curricula Activities

coordinator:

“Curriculum integration is a combination of different subjects, which are related to each other. I

think it is an important issue that should be explained at the Parents Day. ”

On the other hand, the Curriculum Development coordinator regarded it as an educational reform that meets the needs of the society:

“I think curriculum integration is an educational reform, which meets the needs of the society. It

puts different subject contents into a theme so that teaching becomes better organized and more

effective; then students’ learning will not overlap.”

For the Information Technology coordinator, curriculum integration is concerned with a student-centered teaching approach that helps to develop multiple intelligences:

“Curriculum integration refers to the changing of learning environment from traditional classroom

to outside school, society and even all over the world. The use of IT such as Internet resources can

be an accompaniment. I think it is a kind of student-centered approach in learning which helps to

develop students’ multiple- intelligences.”

The Subject Head pointed out that it concerned a variety of learning activities inside and outside the school that related to daily-life experience:

“The teaching contents can be taught under a theme. Students are occupied with different kinds of

learning activities inside and outside the school, which link with students’ real life experience. ”

Lastly, the Civic Education coordinator related it as another way of organizing learning

involving modular, inter-disciplinary, and thematic approaches:

“Curriculum integration can be another way to organize learning of different areas. It refers to module teaching, thematic teaching and interdisciplinary studies such as Civic Education. As we cannot be separated from our society or divide our life-skills apart, learning should also be integrated too.”

Individual key informants perceived curriculum integration in diversified ways starting from wider contexts such as an education reform, a combination of subjects, another way of organizing learning; to more confined aspects such as a student-centered teaching approach and a variety of learning activities. Moreover, the respondents brought together critical issues including the needs of the society, similar contents in subjects, students’ multiple intelligences, daily-life learning inside and outside school, and teaching modular, inter-disciplinary and thematic studies. As a consequence, the different views and definitions of curriculum integration are clearly important for the implementation. The recent reform of the education system proposed by the Education Commission (1999) allows schools to opt for different approaches to curriculum integration. However, the issue is seen as a whole school approach in response to the curriculum change. The key question is how teachers’ diversities are to be resolved so that a whole school approach or policy is to be adopted, at the level of implementation, for the development of curriculum integration.

As suggested by Lake (1994), all of the definitions of integrated curriculum or interdisciplinary curriculum generally include: a combination of subjects, emphasis on projects, resources that go beyond textbooks, relationships among concepts, thematic units as organizing principles, and flexible schedules/student groupings. Therefore, teachers' views in the present study generally echoed with what was suggested by Lake as well as arguments put forward by other educators in Section 2.1.1 of Chapter 2 (p.25).

One issue not mentioned by the teachers was "resources that go beyond textbooks".

Regarding the traditional subject-bounded curriculum, Wolfinger and Stockard (1997, p.32) argue, "Textbooks by their very nature further reduce curriculum into subject matter areas". Hence, it is very important for the teachers to make use of a variety of teaching resources other than the textbooks in teaching an integrated curriculum. The reason may be due to Hong Kong teachers' reliance too much on the use of textbooks as the main teaching resource.

Furthermore, it is found that there are many answers for, both in the literature review and teachers' interpretations from the interview, what curriculum integration is.

However, Beane (1997) argues that authentic curriculum integration is a curriculum design that is concerned with enhancing the possibilities for personal and social integration through the organization of curriculum around significant problems and issues, collaboratively identified by educators and young people, without regard for

subject area boundaries. Thus, for primary school teachers in Hong Kong it is worth considering what Beane has suggested for the definition of authentic curriculum integration in practice.

5.3 Perceived advantages and disadvantages of a subject-bounded curriculum

Other than the definitions of curriculum integration, the interviewees were asked for their views on the advantages of a subject-bounded curriculum. For example, the Subject Head shared the views of the Curriculum Development coordinator that subject-bounded curriculum had been well developed and was easy for teachers who had strengths in specific subjects to teach in depth or in detail:

“I think that it has two advantages. First, it already exists so it is easier for we teachers to master the teaching. Second, we already have a well developed teaching syllabus. It matches with subject teachers’ expertise, who have strengths in specific subjects. We can easily follow step by step the teaching sequence, aims and teaching strategies. Students are able to learn different categories of knowledge in depth and in details” (Subject Head)

The Information Technology coordinator had similar views with the Extra-Curricular Activities coordinator that students concentrated on learning basic knowledge, concepts and skills in a regular and systematic process:

“I think subject-bounded curriculum can help students learn the basic knowledge, concepts and skills in a regular and systematic process. They can learn the subject knowledge directly. For

teachers, they can concentrate on teaching certain kinds of knowledge.” (Information Technology coordinator)

At the end, both the Class Teacher and the Civic Education coordinator responded that students were able to identify different subject learning more easily. The illustrative comment is:

“Students can understand more clearly the content they have learned in a regular process; and it helps students to master clear concepts of individual subjects. In addition, they are able to identify the differences between subjects, say, in learning Chinese and English.” (Class Teacher)

On one hand, the views on the advantages were not so clearly polarized; however, there was closer agreement about the disadvantages. Fragmentation, low levels of motivation and interest among certain students, remoteness from real life experience, lack of linkage with extra-curricula activities, overlapping contents which causes a waste of time and resources were all frequently cited in the replies. The following are the brief extracts:

“For subject-bounded curriculum, students may have difficulties in integrating what they have learned from different subjects. I think the problem is that students do not learn so much in extra-curricula activities because there is a lack of linkage between the two.” (Extra-Curricula Activities coordinator)

“I think the problem is that individual subjects are separated in unnatural way in the subject-bounded curriculum.” (Curriculum Development coordinator)

“What students have learned is fragmented. Students’ motivation for learning is not so strong when studying subject-bounded curriculum. As it is quite monotonous, it is not easily linked to daily life.

Also, students’ memories are not long lasting, as they are unable to apply what they have learned to solve real-life problems. Another problem is that the subject contents always overlap; and it always wastes time and resources.” (Information Technology coordinator)

“Students’ knowledge may be cut to pieces by subject-bounded curriculum. They haven’t mastered the ability to put relevant concepts together. Students may have weak motivation in learning an individual subject once they hate it.” (Civic Education coordinator)

“There is a lack of linkage among subjects; and the teaching syllabuses of the subject-bounded curriculum often overlap. Resources are wasted if the subject curriculum overlaps. Students may find that the knowledge acquired cannot be linked with their daily life. Thus, students may lose their interest in study. ” (Class Teacher)

“Subject-bounded curriculum is not coherent with our daily life. Students may have difficulties in integrating their concepts with real-life situations. It is because they are not aware of the connections between subject knowledge and daily life.” (Subject Head)

In addition to the advantages, there are still some problems in the subject-bounded curriculum. It would seem important that something should be done to re-organize the

current primary school curriculum. Thus, given the degree of agreement about the problems of fragmentation, for any school discussion, this may well be one of the useful starting points in the attempt to bring about curriculum change.

5.4 The need for integration in primary schools

Besides, the respondents were further asked in the interviews why primary schools needed curriculum integration. With reference to the response, most of the respondents perceived that curriculum integration was needed together with some considerations including the coverage of subjects and levels, selection of contents, and whether it was worthwhile and really beneficial to students:

“I think there is a need to integrate certain parts of the whole curriculum. Some students demonstrate their ability and potential well in integrated studies.” (Extra-Curricula Activities coordinator)

“If curriculum integration is beneficial to both teachers and students, it is worthwhile to have the integration. Otherwise, the integration is meaningless. I suggest the curriculum contents selected for integration should be closely related.” (Curriculum Development coordinator)

“Curriculum integration is possible for some topics. It links student learning with daily-life experience. Students learn more effectively if curriculum integration is implemented. I don’t think it is a waste as the developed teaching resources can be used repeatedly after some modifications.”

(Information Technology coordinator)

“Curriculum integration is necessary but the implementation needs some careful consideration. For example, should teachers follow the integrated contents definitively? Or should they split up the contents to some extent to let students know they are still learning the subject-bounded curriculum? Also, the selection of appropriate curriculum contents for integration should be taken into first priority. I think curriculum integration is innovative, but the government should provide schools with appropriate support and resources. ” (Civic Education coordinator)

“Curriculum integration is necessary but it would be better if teachers are provided with some experience of implementation from other countries. It is worth using quite a large amount of resources if curriculum integration is really beneficial to students. We can integrate some subjects in lower primary first; and then integrate more subjects in upper primary. Subjects such as Chinese, General Studies and Art can be integrated as one subject. ” (Class Teacher)

However, the Subject Head viewed the need for curriculum integration with some reservations. She considered whether it was a waste of resources, whether it was the appropriate time to integrate the present curriculum and whether the subject-bounded curriculum needed to be faded out completely. The following were the comments received:

“Integration of the whole curriculum is not so necessary at this stage because the structure of the primary curriculum is still under finalization. In the implementation of curriculum integration, it doesn’t mean subject teaching should completely disappear. Students can be equipped with basic knowledge in individual subjects before learning in an integrated approach. I think curriculum integration worth implementing but not worth using quite a large amount of resources for.”

On the relationship between disciplines of knowledge and curriculum integration in Section 2.2 of Chapter 2 (p.31), Beane (1997) argues that they are not enemies; and a separate-subject approach is not the ‘end’ but the ‘means’ of education. Since disciplinary boundaries are fluid and often connect with other disciplines to create interdisciplinary fields and projects, disciplines of knowledge and curriculum integration can supplement each other to provide the ‘whole’ context of student learning. As a consequence, the implementation of curriculum integration by means of an open, flexible and coherent curriculum framework as proposed by the Curriculum Development Council (1999) involving key learning areas instead of the traditional subjected-bounded curriculum may be an alternative for the present primary school curriculum in Hong Kong.

5.5 Advantages of implementing integrated curriculum

The key informants were asked what they considered to be the advantages of implementing integrated curriculum. The advantages were many as perceived by them.

Table 5.1 illustrates the advantages as raised by individual teachers.

Table 5.1: Advantages of implementing integrated curriculum

<i>Advantages/ Key informants</i>	<i>Extra- Curricula Activities coordinator</i>	<i>Curriculum Development coordinator</i>	<i>Information Technology coordinator</i>	<i>Civic Education coordinator</i>	<i>Class Teacher</i>	<i>Subject Head</i>
Collaborative use of subject teachers' expertise	X					
Cater for individual learning differences	X	X	X		X	X
Learning is holistic, daily-life related, and cooperative		X	X	X		X
Helps to develop a better personality, self-confidence, and problem solving abilities		X	X	X	X	
Assessment is authentic and multiple-mode			X	X	X	
Parents and students participate in the assessment process			X			
Flexible time management, more time to teach		X	X			X

The perceived advantages concerned student learning which was holistic and daily-life related. Further, integrated curriculum was student-centred which catered for individual learning differences; and assessments were authentic and multiple-mode. It also helped

students develop a better personality, self-confidence and problem solving abilities.

Teachers might find time management more flexible and there might be more time for

teaching. Some of the representative comments are included in the following:

“I think the advantage may be that it makes collaborative use of the expertise of different subject teachers. I find most talented students perform well in integrated studies; but this may not be the case for the other students. ” (Extra-Curricula Activities coordinator)

“It reinforces the problem-solving abilities of students because the integrated parts can be applied to real circumstances. By means of cooperative learning, students are stimulated to learn in groups in order to develop a better personality and self-confidence. Since assessment is set up in multiple modes according to learning objectives, it is more authentic and even parents and students may participate in the assessment process. Students tend to achieve better and their interest in learning can be enhanced. I think another advantage is that it allows flexible time management and teachers can have more time to teach. ” (Information Technology coordinator)

“Curriculum integration may provide a path for the linkage between subject-bounded curriculum and daily life. It may be advantageous to delete some overlapping in the curriculum so that some more time can be spared for learning in other aspects. I think curriculum integration may bring more fun to learning. Students may also choose their mode of learning according to their abilities. ”

(Subject Head)

Therefore, the findings of the interviews basically echoed with the findings of the

questionnaire survey as indicated in Section 4.2.3 of Chapter 4 (p.100). For an integrated curriculum, respondents considered that students' learning should be student-centred, holistic, and related to daily-life. They also indicated there was more time for learning activities and less stress from examinations. As Goodlad (1996, p.330) contends, "The ultimate integration is in the learner and the process is aided presumably by the way in which the curriculum components are organized." Therefore, for curriculum integration, student benefits are concerned with the student-centred approach, catering to individual learning differences, holistic and real-life related learning, more flexibility in learning and assessment, and less stress from examinations.

Furthermore, with reference to the findings in Table 5.1, teachers regarded that students were stimulated to learn cooperatively by helping each other. It also helped them develop better personality, self-confidence and problem solving abilities. Furthermore, in Section 2.2 of Chapter 2 (p.30), Pring (1976) criticizes the reliance on the academic disciplines as the basis for organizing the curriculum and that insufficient emphasis is given to addressing personal and social education. Blenkin and Kelly (1998) also claim that subject-bounded curriculum is at odds with the kind of social cohesion and integration one is attempting to promote by integrated studies. On the other hand, Lipson et al. (1993) claim that an integrated knowledge base leads to faster retrieval of

information and promotes positive attitudes in students. Since personal and social education, social cohesion and integration, ability to retrieve information, and the development of better personality/ self-confidence/ problem solving abilities/ positive attitudes are critical elements for preparing future citizens of Hong Kong, curriculum integration may help in meeting the future needs of Hong Kong society. As a consequence, it is beneficial to Hong Kong if the above-mentioned issues and qualities are to be developed and enhanced by means of the implementation of curriculum integration in school education.

Furthermore, referring to the findings in Table 5.1, teachers found time management more flexible and there was more time for teaching and student learning. It also helped to make collaborative use of expertise of subject teachers. On the new roles of the teacher, Leshin (1998, p.5) argues, "No longer is the teacher the sole source of information or the subject matter expert. The teacher's role changes from the dispenser of information to a learning guide." Moreover, as suggested by Vars (1996b), the advantages of interdisciplinary teaming are many. First, teachers tend to know each other better. Second, teachers know students better, for they share information about youngsters. Third, it is a natural way to bring guidance counselors, teaching staff and children together in close relationship. Fourth, there is flexibility in teaching arrangement regarding teaching time and activities that serves the needs of teachers and

students. Fifth, there is enhanced correlation among subject disciplines as well as strengthened correlation of learning experiences. On the effects of curriculum integration on teachers other than the benefits and flexibilities in teaching and learning, it brings a changing role for teachers. It is necessary for teachers to upgrade themselves by knowing more about the innovation, work collaboratively in teams with other teachers with diverse expertise, and make the good use of community resources for teaching. However, it is critical to consider whether the benefits outweigh the extra workload and stress brought by the implementation of curriculum integration.

5.6 Curriculum integration and subject fragmentation

The respondents were asked in the interviews whether curriculum integration could overcome the problems without reducing the advantages. On this issue, the comments received were rather diversified. On student achievement, the Extra-Curricular Activities coordinator contended:

“I think there may be a drop of student achievement if the whole curriculum is to be integrated. I prefer to keep the subject-bounded curriculum if I have to choose.”

Moreover, the Civic Education coordinator answered with some reservations:

“Curriculum integration can overcome the problems of subject-based curriculum but the integrated contents must be carefully identified. It will also bring extra workload and stress for teachers, which should be a critical issue. ”

On the other hand, the Civic Education coordinator replied by mentioning the balance in the implementation:

“It is possible to include both subject learning and integrated studies in the primary curriculum because certain subjects may be integrated and the others may not. ”

Likewise, the Information Technology coordinator responded:

“I think for the time being, it is reasonable that both integrated curriculum and subject-bounded curriculum be adopted for primary schools. As for the advance of technologies, there could be possibilities for the change of rigid subject boundaries. ”

The Class Teacher pointed out similar views:

“Integration curriculum and subject-bounded curriculum can be implemented at the same pace as not all the school subjects can be integrated. For those subjects that are not suitable for integration, they may be taught separately. ”

Lastly, the Subject Head suggested the approaches:

“I believe curriculum integration can overcome some of the problems. I suggest the main approach should be subject-based teaching; and integrated curriculum acts as the supplement. It is very difficult to have integration for the whole curriculum. ”

In short, according to these comments, there might be a need to implement both integrated curriculum and subject-bounded curriculum simultaneously since not the all

curriculum contents are appropriate or suitable for integration. Other opinions included that it might cause a drop in student achievement, and extra workload and stress for teachers concerned.

Therefore, coordinators' concern focused on whether there should be, or how to obtain, a balance between integrated curriculum and the subject-bounded curriculum in the primary school curriculum. Moreover, problems such as teacher's worry about possible decline of student achievement, together with teacher's stress and extra workload should be removed or solved before curriculum integration really can find a place in the primary curriculum.

5.7 Involvement in team teaching

Interviewees were asked whether they were willing to join in team teaching with other teachers and the reason why. The reasons for joining team teaching included the following: it brought a better quality of learning; it was beneficial to students; and, it also created innovative ideas in teaching. Some of the comments are listed as follows:

“I believe team teaching provides my students with a better quality of learning. So team teaching is recommended as teachers can share their expertise and ideas in teaching; this in turn benefits students. I know some of my colleagues join it because my boss instructs them. ”

(Extra-Curricula Activities coordinator)

“For myself, team teaching in a single classroom has never been done although I always prepare lessons together with my colleagues for improvement. Our team spirit is quite good.”

(Curriculum Development coordinator)

“I have started team teaching with my colleagues because my boss encourages us to do so. In fact I am willing to join because I believe I can improve and upgrade myself; and at the same time I learn a lot from my colleagues. It always brings us innovative ideas in teaching. Often I find some interesting teaching content to stimulate students to learn; and consequently they are able to build up their confidence in learning. ” (Civic Education coordinator)

On the contrary, the reason not to join team teaching included: it was not easy for colleagues to establish a collaborative culture in school; there were many teachers still not able to adapt themselves to team teaching; there was a limitation of time and heavy workload; and it was difficult to compromise with colleagues’ diversified views in teaching approaches:

“No, I haven’t joined any team-teaching so far but I’ll consider it only if it is really beneficial to my students. I am finding some appropriate teaching methods for teaching integrated curriculum. I doubt it is easy for my colleagues to establish a collaborative culture in my school; and some of them still cannot adapt themselves to this kind of teaching approach. ” (Information Technology coordinator)

“Although I do not object to team teaching, I am not intending to join because of the limitations of time and heavy workload. ” (Class Teacher)

“I am not willing to join team-teaching at this moment due to several reasons. I find some of my colleagues are not serious in their work. They always have different thinking that is difficult to compromise with; so it is the obstacle for team-teaching. However, I don't mind exchanging teaching ideas with my colleagues who have thinking and an approach similar to mine” (Subject Head)

As contended by Drake (1998) in Section 2.2.3 of Chapter 2 (p.40), there is the need for collaborative effort among teachers, appointment of coordinators of integrated studies, and establishing new teams of responsibilities. Thus, the implication is that there will be more cooperation among the subject departments within individual schools. Therefore, the establishment of a collaborative culture is a vital impact on primary schools attempt to implement curriculum integration. Another implication may be that these schools should start to establish networks and links with the community to provide more learning opportunities for students. The last issue considers the quality of leadership, coordination and management.

5.8 Equipping for curriculum integration

At the interviews, teachers were asked whether they were equipped to be involved in the curriculum innovation and the reason why. Those who claimed they were equipped

to be involved were able to master different kinds of teaching skills and they hoped to improve teaching techniques through learning, sharing and participation. Typical examples of the comments included the following:

“I think I have mastered the abilities to be involved because I am able to master different kinds of teaching skills. I hope I can improve my teaching techniques through teaching integrated curriculum. However, there are many issues for us to handle in school, we have to set priorities.”

(Extra-Curricula Activities coordinator)

“I am equipped with the knowledge, skills and attitude for curriculum integration. I can find references from many channels as to equip myself. It is not difficult to identify the theme of teaching and to arrange relevant group work for my students. I am willing to share my own experience with my colleagues, and at the same time, I can learn from others. ” (Civic

Education coordinator)

On the other hand, those who claimed they were not equipped to be involved lacked the confidence in participation since they did not quite understand either the theory and/ or the practice of curriculum integration. They claimed that they are only familiar with teaching individual subjects so there was a need for curriculum integration to be implemented step by step. However, individual respondents indicated their willingness to upgrade themselves through collaboration with others. Some of the extracts are illustrated below:

“I don’t think I am well equipped. I understand the theory regarding curriculum integration but not the case in practice. However, collaboration among teachers helps the implementation. ”

(Curriculum Development coordinator)

“I think I am not well equipped especially in teaching techniques, time management and organizing learning activities. It’s not easy to plan the instructional strategies and to identify the learning objectives once we have determined a theme. There is an urgent need for us to consolidate our conceptualization and understanding of curriculum integration although many of us have indicated a positive attitude towards the integration.” (Information Technology coordinator)

“I don’t think I am well equipped with both the knowledge and skills for curriculum integration. As I do not fully understand the rationale of the innovation, I lack the confidence in participating in the implementation. However, I don’t object to curriculum integration but it needs to be implemented step by step. ” (Class Teacher)

“I am not so well equipped because most teachers are supposed to be familiar with one or two subjects. I can say I am well equipped with the knowledge and skills in teaching individual subjects in primary school. Since I have only preliminary understanding of curriculum integration, I am willing to upgrade myself by means of professional development. I’ll try to integrate students’ learning with current and social affairs. ” (Subject Head)

On the factors which inhibit the implementation of a curriculum, Snyder et al. (1996, p.430) argue, “One of the inhibiting factors was the teachers’ lack of skills and knowledge needed to conform to the new role model.” Thus, teachers who perceived the benefits, such as improvement of teaching and learning, intended to participate while teachers who intended not to be involved perceived the drawbacks such as heavy workload, lack of basic knowledge and time and a collaborative culture in schools.

5.9 Difficulties in teaching an integrated curriculum

Teachers at the interviews perceived some difficulties in teaching an integrated curriculum. They were mainly concerned with instructional design, integrating different subject contents, insufficient time/ knowledge/ skills/ experience/ updated information for change. Individual respondents also claimed there were difficulties in catering for individual differences, dealing with too many innovations at the same time, facing heavy non-teaching duties, pressure from the management, mismatch of public examination, and using ICT resources in teaching. Other difficulties claimed by respondents included the lack of human resources, support from parents and principals, professional development and insights into various subjects in teaching. Various difficulties raised by the key informants are included in Table 5.2.

Table 5.2: Difficulties in teaching integrated curriculum

<i>Difficulties / Key informants</i>	<i>Extra- Curricula Activities coordinator</i>	<i>Curriculum Development coordinator</i>	<i>Information Technology coordinator</i>	<i>Civic Education coordinator</i>	<i>Class Teacher</i>	<i>Subject Head</i>
Instructional design	X	X	X			
Integrating different subject contents	X	X			X	
Catering for individual differences	X				X	
Dealing with too many innovations at the same time			X	X		
Heavy non-teaching duties			X		X	
Pressure from the management				X		
Insufficient time/ knowledge/ skills/ experience/ updated information for change	X			X	X	X
Lack of human resources	X	X				
Lack of support from parents/ principals				X		X
Lack of sufficient professional development						X
Mismatch of public examination						X
Using ICT			X			
Insufficient insight into various subjects					X	X

Furthermore, the following are samples of the comments given by the interviewees:

“I think that there are some difficulties. First, it is not easy to have a good teaching plan. We should try to find out what students should have learned after six years of primary education; and then integrate all the aspects into various themes. Second, it is the lack of human resources since curriculum reform needs extra manpower, time and extra effort to take care of individual differences. Third, it is the lack of relevant and updated information about the innovation. ”

(Extra-Curricula Activities coordinator)

“I think the vital difficulty is the lack of human resources; also, different subjects are not easy to integrate. Always there are problems in the design and organization of teaching plans. However, I do not find too much conflict of interest among subject panels.” (Curriculum Development coordinator)

“It is rather difficult to organize and arrange interesting learning activities for our students. If the activities are not well planned, it will directly affect students’ learning motivation and effectiveness. We are facing challenges from several innovations such as TOC, IT and language benchmark examinations at the same time. Extra workload also comes from non-teaching duties such as administrative work. Another obstacle is the mismatch of resources like the use of IT in teaching integrated curriculum.” (Information Technology coordinator)

“The difficulties may include time limitation, heavy workload and pressure from my boss; and there are too many reforms at the same time. I think other difficulties are the lack of relevant experiences and support from school management.” (Civic Education coordinator)

“The main difficulties are time limitation and heavy workload. A lack of the necessary skills and knowledge may affect the development of curriculum integration. I do not doubt the competition for resources among subjects as some minor subjects, say, Religious Study, is unlikely to be integrated. Teachers may have difficulties in deciding what is to be included in the integrated content. Individual differences among students may increase the difficulty of teaching.” (Class Teacher)

“I am sure the difficulties come from insufficient teacher training for curriculum integration. The problem is that teachers’ own knowledge and awareness towards curriculum integration are still weak. We teachers need to have an insight in each subject and aspect. I can say Parents’ understanding of and support to curriculum integration are critical factors. I am also afraid teaching may be too much child-centered. It may not be good for students if they learn only what they are interested in and neglect the basic knowledge and skills. My last point is that the public examination system may form a big obstacle for the implementation of curriculum integration.”

(Subject Head)

The findings of the interview, regarding the difficulties in instructional design, echoed with the findings of the question survey in Section 4.2.6 of Chapter 4 (p.106). If instructional design is the major difficulty in teaching an integrated curriculum, teachers should be provided, other than the enhanced pre-service teacher training, with further professional development in facing the challenges brought by the implementation of curriculum integration. In brief, the teacher training institutions in Hong Kong, as well as the Education Department, should be responsible for such an important issue.

5.10 Individual teacher’s contribution

Teachers were asked at the interviews how they could contribute in helping the implementation of curriculum integration in their schools. In order to contribute, the

Extra-Curricula Activities coordinator claimed that he would set up systematic linkage of classroom learning with the extra-curricula activities:

“I, as the coordinator of extra-curricular activities, can organize different kinds of activities like visits and hiking which can be linked with student’s formal studies so as to reinforce what they have learned. However, many colleagues overlook the linkage of classroom learning and the learning from extra-curricula activities. There is always a lack of systematic linkage of the two.”

The Curriculum Development coordinator claimed that she would establish networks among teachers and schools and enhance experience and resource sharing:

“I would like to learn from other schools to find some practical methods for curriculum integration. I think the networks among teachers and schools may help. Experience and resource sharing are very important for the curriculum development process in primary schools.”

On the other hand, the Information Technology coordinator claimed that he would apply IT in teaching like Internet browsing to enhance the efficiency of learning and teaching. He further claimed that he would apply IT on one hand to motivate student learning in his school; and on the other hand there was a need to have teacher guidance for students using IT as a learning tool:

“I would regard IT as a tool of learning and teaching. The application of IT in primary schools helps to enhance the efficiency of learning and teaching. Students and teachers may feel more comfortable when they are dealing with curriculum integration mainly because it saves time. For

example, by means of Internet browsing, students and teachers are able to get the relevant information they want by means of a convenient channel. IT also helps to motivate student learning. However, cautions must be taken to avoid students becoming lost in the world of the Internet. So I think teacher guidance to students is very important when applying IT in integrated studies. ”

The demonstration of leadership by providing guidelines for the implementation was claimed by the Civic Education coordinator:

“Playing the role as coordinator of curriculum development, I have to demonstrate my leadership and provide various approaches and innovative ideas so as to guide my colleagues from various subject departments in adapting to curriculum integration. ”

Furthermore, the Class Teacher claimed that she would make ultimate use of ‘class-teacher’ periods by adjusting teaching contents and approach and conducting more group activities in teaching integrated curriculum:

“Actually, I do not quite understand my role as a class-teacher in curriculum integration. However, I can contribute something in my teaching especially in the ‘class-teacher periods’. I can adjust the teaching contents and approach if there is a need for integrated learning. Or I can conduct more group discussion in interdisciplinary teaching.”

Finally, the Subject Head claimed that she would work collaboratively with other subject heads; and she would act as the leader by involving in the process:

“There is a need for me to work collaboratively with other teachers who are in charge of different

subjects to plan and implement integrated curriculum. Among colleagues in my subject panel, I should act as the leader of the innovation; I also intend to be involved as much as I can in the implementation. ”

The success of implementing curriculum integration depends very much on the whole school approach and involvement; and all the teachers in the school can contribute to the implementation of curriculum integration in their own roles by means of applying various teaching strategies or approaches. One point should be mentioned regarding the role of a class teacher. As raised by Vars (1996b, p.149), the advantages of “block-time” classes are many. First, teachers have fewer pupils for a longer period of time. Second, pupils have fewer teachers. Third, the same teacher teaches one group of pupils in more than one subject area. Lastly, pupils and teachers are together for continuous periods of time greater than a single period. Therefore, the role of class teachers can be associated with the introduction of a block-time class for the teaching of an integrated curriculum in Hong Kong’s primary schools.

5.11 Professional development of teachers

What teachers considered as the most important ways of enhancing professional development was asked at the interviews. In response to this question, the Extra-Curricula Activities coordinator suggested:

“It is more preferable for teachers to act as ‘curriculum planner’. I understand what are the needs of

my students; thus, I can design the most suitable curriculum for my students. There should be some training course for teachers. According to my past experience, the quality of some training courses offered by the Education Department was far from satisfactory. Even if training courses are to be provided it does not mean that they are good. I think it should have some kind of skills training; it should help teachers accept the rationale of curriculum integration.”

The Curriculum Development coordinator also pointed out:

“I think teachers should be curriculum designers so that they can put theory into practice. Professional development should focus on the skill and knowledge of planning integrated curriculum. ”

For the Information Technology coordinator, he contended:

“I think the most vital factor is to change teachers’ minds by means of professional development programmes. If teachers support the curriculum integration and teachers act as ‘curriculum planner’, I believe curriculum integration can be implemented successfully. ”

It was argued by the Civic Education coordinator:

“If some teachers find themselves interested in the “Project Teaching”, they can further equip themselves by means of professional development. I think it is important to provide teachers with some training, so that teachers can accept and understand the approaches in curriculum integration.”

The following was what the Class Teacher revealed:

“I lack the relevant experience at this stage. If I were able to master the process, I could join in and design the content of integrated studies. Therefore teachers should be provided with opportunities for receiving professional training. Other than being provided with the necessary knowledge & skills, they should be trained on how to make full use of the support or resources from the government, schools, parents and society. ”

The elaboration of the Subject Head was:

“At the early stage, some successful cases can be referred and then we are reinforced by the idea of curriculum integration. We can try to design the integrated curriculum on our own at a later stage. We should have an impetus to motivate ourselves to achieve their goals. We may not be completely familiar with the techniques and process of implementation; and the heavy workload brings us much pressure. Thus, we need sharing with other schools so that we can gain experience and improve our practice. It is most important for the school authority to provide us with support for this kind of professional development including workload reduction and clerical support. ”

According to the interviewees, the most important ways of enhancing the professional development of teachers (illustrated in Table 5.3 below) included preparing teachers for instructional design, helping teachers accept the rationale of curriculum integration, and providing the necessary knowledge & skills in dealing with curriculum integration. Other ways consisted of the understanding of approaches to integration, knowing how to make good use of various supports, experience sharing opportunities, support from

management to teachers in participating in professional development, and finally the quality of training courses. Therefore, teachers would be able to realize and accept the rationale of curriculum integration; and on the other hand, they could master the necessary competency as to participate in the whole process at the frontier. In brief, further professional development is essential for providing teachers with the fundamental and necessary knowledge and skills for the implementation of curriculum integration. Finally, support from the school management to encourage teacher participation is vital.

Table 5.3: Ways of enhancing professional development

<i>Ways of enhancing professional development / Key informants</i>	<i>Extra- Curricula Activities coordinator</i>	<i>Curriculum Development coordinator</i>	<i>Information Technology coordinator</i>	<i>Civic Education coordinator</i>	<i>Class Teacher</i>	<i>Subject Head</i>
Help teachers accept the rationale of curriculum integration	X		X			X
Help teachers to understand the approaches to integration				X		
Prepare teachers for instructional design	X	X			X	X
Provide necessary knowledge & skills	X	X			X	
Help in making full use of various support & resources					X	
Experience sharing opportunities						X
Support from management to participate						X
Quality of training course	X					

5.12 Key factors that bring success

Key informants at the interviews raised the key factors that brought about the success of implementation of curriculum integration. They were the teacher's contribution and experience sharing, sufficient support and resources, reform of the public examination system, and students really benefiting from the innovation. They claimed additional factors such as teacher competency, teacher's knowledge of various subjects, collaborative culture and team spirit in school, reform of the whole education system, stable government policy, and leadership in schools. The following are some examples of the comments:

"I would say that the key to success might be the abolishment of public examination system since it hinders the development of curriculum integration in primary schools. I can also suggest another three key factors that will bring about the success. Firstly, allow teachers more time to prepare for their teaching. Secondly, set up good examples in pilot schools as references for the others. Thirdly, the Education Department and the heads of schools should demonstrate leadership in the innovation." (Extra-Curricula Activities coordinator)

"The key to success should be based on the teachers' contribution – whether they are whole-hearted enough to contribute. Besides, students may face the problem that what they have learned from the integrated curriculum does not match with what the public examinations intend to assess." (Curriculum Development coordinator)

“The success is due to teacher competency. Some of them really have little idea of curriculum integration or they lack the relevant knowledge and skills. Most teachers should be familiar with the contents of various subjects.” (Information Technology coordinator)

“Integrated curriculum should provide students with more chances to be involved in daily life learning activities. It can also provide opportunities for students to enhance their problem solving and self-learning abilities. Also, the reform of public examinations should match with the development of curriculum integration. I think parents are always expecting students to achieve good results in public examinations.” (Civic Education coordinator)

“The key factor of success should be the introduction of systematic reform in the whole education system, especially public examinations, in Hong Kong. Another factor may depend on how many resources the government provides for the implementation, for example - human resources.”

(Class Teacher)

“The success depends on whether students benefit most from the integrated curriculum. It is very important for learning to have tight coherence with students’ real life experience. Collaborative culture in school and team spirit among my colleagues are also crucial factors that lead to success.

Stable government policy for the reform may help.” (Subject Head)

As a result, various key factors for success raised by the key informants are summarized and listed in Table 5.4.

Table 5.4: Key factors for success

<i>Key factors for success/ Key informants</i>	<i>Extra- Curricula Activities coordinator</i>	<i>Curriculum Development coordinator</i>	<i>Information Technology coordinator</i>	<i>Civic Education coordinator</i>	<i>Class Teacher</i>	<i>Subject Head</i>
Teacher competency			X			
Teacher's contribution/ experience sharing	X	X				
Knowledge of various subjects			X			
Collaborative culture/ team spirit						X
Sufficient support and resources	X				X	
Reform of the whole education system					X	
Public examination system	X	X		X	X	
Stable government policy						X
Leadership in schools/management	X					
Students benefit				X		X

With reference to the above table, the major concern was, obviously, the reform of the current public examination system; while the other concerns were similar to those perceived by respondents to the questionnaire survey (mentioned in Section 4.2.8 in Chapter 4, p.110).

The Eight-Year Study in the 1930s, mentioned in Section 2.3.7 of Chapter 2 (p.50), convincingly demonstrated the effectiveness of interdisciplinary curriculum in high schools. Universities and colleges dropped admission requirements, subject and credit prescription, and, in most cases, entrance examinations. This was very critical to the success of the study because then, as now, high schools claimed that they could not provide innovative programs including integrated subject matter because they did not prepare students for university (Drake, 1998). Therefore, student learning in integrated

curriculum should be explicitly linked to the learning in further studies or university. Furthermore, according to the Hong Kong Government (1998), at the end of Primary 6, all pupils in schools participating in the government's Secondary School Places Allocation System are provided free Secondary 1 places. Allocation is based on parental choice and internal school assessments scaled by a centrally administered mechanism. As such, there is an urgent need for the policy makers to set up and announce the explicit linkage between the content of the integrated curriculum in schools with the mechanism of the centrally administrated system.

5.13 Major findings of the interviews

In this chapter, findings from the semi-structured interviews have been analyzed and discussed by considering their implications for the implementation of curriculum integration in Hong Kong's primary schools. However, for convenience, the major findings are now summarized as follows:

1. Teachers perceive what curriculum integration is in diversified ways.
2. Although subject-bounded curriculum has been well developed, it still has some problems.
3. Some teachers perceive curriculum integration as necessary while others perceive the need with reservations.
4. Integrated curriculum provides students with learning that is student-centered,

holistic, and daily-life related; and it involves assessment that is authentic and multiple-mode.

5. Integrated curriculum helps students develop better personality, self-confidence and problem solving abilities.
6. There may be a need to implement both integrated curriculum and subject-bounded curriculum in primary schools at the same time.
7. Time management in teaching an integrated curriculum is more flexible; and it allows more time for learning and teaching.
8. There is a need for teachers from various subject departments to work together for the preparation of teaching an integrated curriculum.
9. Teachers want to participate in curriculum integration with the desire of improving teaching techniques through sharing and participation; and those who are not equipped to be involved lack the necessary knowledge and skills.
10. Teachers want to participate in team teaching because it brings a better quality of teaching and learning; and those who do not want to participate perceive difficulties in establishing collaborative culture and finding extra time for preparation.
11. Individual approaches to curriculum integration may cater for student benefits regarding knowledge, skills and attitudes learning, although thematic approach

seems to be a popular approach.

12. The success of implementing curriculum integration depends very much on the contribution and involvement of individual teachers.
13. Professional development of teachers should prepare teachers for instructional design, help teachers accept the rationale of curriculum integration, and provide the necessary knowledge & skills in dealing with curriculum integration.
14. There are many critical factors for the success of curriculum integration involving teacher's contribution and experience sharing, sufficient support and resources, the reform of public examination system, and students' real benefit from the innovation.

5.14 Major findings of the questionnaire survey

In the previous chapter, findings from the questionnaire survey were analyzed and discussed by considering their implications on the implementation of curriculum integration in Hong Kong's primary schools. However, for the convenience of reading, the major findings are now summarized under the headings of 'General findings' and 'Differences within the sample'.

5.14.1 General findings

1. There is a need to enhance the lateral and longitudinal coherences between kindergarten, primary and junior secondary curriculum.

2. Physical Education is not regarded as a major part of an integrated curriculum.
3. Integrated curriculum, when compared with subject-bounded curriculum, is not more likely to cause students to underachieve on traditional standardized tests.
4. Regarding teaching an integrated curriculum, students benefit least in the ‘modular approach within individual subjects’ when compared with the other approaches.
5. Teachers disagree that they are no longer a subject specialist regarding the implementation of curriculum integration.
6. Developing instructional plans and catering for individual differences are the most difficult tasks for the teachers teaching an integrated curriculum.
7. Motivating student learning and instructing students directly are not considered as the most difficult tasks in teaching an integrated curriculum.
8. The success of implementing curriculum integration mainly depends on personal factor such as ‘more clerical support for teachers’ and depends less on institutional factor such as ‘consistency in policy’.
9. Regarding professional development, teachers benefit most in school-based ‘full-time block-release courses’.

5.14.2 Differences within the sample

1. Male teachers indicate stronger agreement with “the success of implementing an

integrated curriculum mainly depends on more clerical support for teachers” than female teachers.

2. Graduate teachers are more positive about the implementation of curriculum integration and the professional development than the non-degree holders.
3. In lower primary classes, motivating student learning is more difficult than in upper primary classes.
4. Teachers teaching Chinese indicate stronger agreement with “the most difficult task in teaching an integrated curriculum is using ICT” than other teachers.
5. English teachers indicate stronger disagreement with “integrated curriculum is more likely to cause students to underachieve on traditional standardized tests” than teachers not teaching English; and they indicate less agreement with “students benefit most in an integrated curriculum by a modular approach within individual subjects” than teachers not teaching English.
6. Teachers teaching the so-called “traditional minor subjects” (Religious Studies/ Library Studies/ Putonghua) indicate stronger disagreement to regarding Physical Education as the major part of an integrated curriculum.
7. Teachers teaching real-life themes believe that students benefit most in this approach and they also disagree that the most difficult task in teaching an integrated curriculum is getting students to learn in groups.

8. Teachers from whole-day schools indicate disagreement with “strong subject boundaries are barriers to relating school curriculum to real-life”, while teachers from bi-sessional schools indicated agreement.
9. Teachers from the schools in the New Territories are more supportive about including Arts education as a major part of an integrated curriculum; and they are more supportive about fostering a collaborative culture among colleagues.
10. Teachers having more than 20 years of teaching experience are more supportive to the integration of several subjects regarding student benefits than teachers having less than 6 years of teaching experience.
11. Response from some groups of teachers indicates a relatively strong positive relationship between some questionnaire items concerning teachers’ confidence in facing curriculum integration, willingness to work collaboratively with other teachers, readiness for involvement in curriculum integration and stress related to curriculum integration.
12. A relatively strong negative relationship is also found, in the response from individual groups, between some items concerning teachers’ status of being a subject specialist and teachers’ frustration coming from curriculum integration.
13. Teachers not teaching the “minor subjects” who represent majority of the sample feel the stress from extra workload and too many innovations in primary schools.

5.15 Summary

Teachers generally agreed in the questionnaire survey as well as the interviews that there were some problems, in the present subject-bounded primary school curriculum, which needed to be dealt with by means of a certain amount of integration. They further acknowledged various benefits which an integrated curriculum brought to students, teachers, schools and the society. Moreover, according to the questionnaire findings, teachers perceived developing instructional plans as the most difficult tasks in teaching an integrated curriculum and this finding was echoed by the interview findings although at the interviews teachers further raised difficulties such as there were too many innovations, a heavy workload and a lack of time for teaching preparation. Again, these extra difficulties were further acknowledged by the questionnaire findings concerning the factors needed for the success of implementing curriculum integration. Respondents to the questionnaire perceived personal factors such as clerical support for teachers as the most important factor for the success. Furthermore, a relatively strong positive relationship between the perceived extra workload and frustration created by too many innovations was found in the majority of these teachers.

On one hand, interview findings revealed that teachers expected further professional development focusing on the provision of necessary rationale, knowledge and skills for the implementation of curriculum integration. They further raised the lack of teacher

competence as the main reason for not being involved in the curriculum innovation. In addition, questionnaire findings also indicated teachers' preference for the school-based full-time professional development programmes.

On the other hand, concerning the advantages of curriculum integration, the difficulties of teaching an integrated curriculum, and the factors for the success of implementing an integrated curriculum, not much difference was found between the questionnaire and interview findings. However, with reference to the interview findings, the key informants perceived what curriculum integration is in diversified ways although they also highlighted some benefits of an integrated curriculum. Teachers' different interpretations of curriculum integration included its definitions and importance, approaches to and levels of, implementation, and willingness or readiness to be involved. Besides, they even indicated some reservations, other than the pace of implementation, on whether to implement curriculum integration or not and how to maintain a balance between the subject-bounded and integrated curriculum in primary schools. The critical issue is, therefore, how to achieve a school policy which governs the common approach to the implementation of curriculum integration in individual schools. To conclude, the interview findings of the present study have been illustrated, analyzed and discussed in relation to the questionnaire findings. In the final chapter, the critical issues, recommendations and conclusions will be offered.

Chapter 6: Issues, Recommendations and Conclusions

6.1 Issues of the Study

The purpose of the present study, as mentioned in Chapter 1, was to note the contexts that effect the introduction of curriculum integration and identify the need to enhance the implementation of curriculum integration in Hong Kong's primary schools. It was also intended to examine primary school teachers' perceptions concerning obstacles that needed to be overcome, and teaching strategies, professional development and resources teachers required to support the implementation of curriculum integration. Finally, it was proposed to make recommendations for the future policy implementation based on these concerns.

6.1.1 The context of introducing an integrated curriculum and the need for enhancing curriculum integration in Hong Kong's primary schools

In Hong Kong, the full implementation of a nine-year free, compulsory and universal education in 1978 has helped reduce elitism in education. Associated with the provision of universal and compulsory education for all pupils up to the age of 15, the fundamental principle of curriculum development in Hong Kong at the Primary level is the provision of a curriculum composed mainly of a common-core. The common-core curriculum is intended to fulfill the needs of the majority of pupils in Hong Kong. However, it is found that a common-core curriculum has, in some

respects, increased disadvantages in attempting to fulfill and meet the needs of pupils at both ends of the ability range. Problems relating to mixed ability teaching have led to calls from the public for improvement. As Morris (1990) contends there is an urgent need to develop a comprehensive system of curriculum development in Hong Kong which goes beyond a concern for the identification of official policy and the production of syllabuses and examinations. Moreover, Wong & Lau (1993) have suggested there should be significant differences between the curriculum design for universal education and for elite education. In order to provide students with a balanced primary school curriculum, the Hong Kong Government has introduced a number of relevant measures since the official introduction of the Activity Approach in 1975. These include Project Work, cross-curricular studies such as Civic Education, integrated subjects such as General Studies, and other initiatives such as modular curriculum within individual subjects.

The subject-bounded curriculum has been long established and well developed in Hong Kong's primary schools. On one hand, it is easy for teachers who have strengths in specific subjects to teach the content in depth and in detail. On the other hand, students concentrate on learning basic knowledge, concepts and skills in a regular and systematic process. However, teachers have perceived some problems within a subject-bounded curriculum. Teachers find overlapping among subject content that

causes a waste of time and resources in teaching, and students have relatively lower motivation in learning. Moreover, students may find learning fragmented (lacking in linkage among subjects and extra-curricula activities) and it is difficult to relate learning to daily-life situations. Another problem is Hong Kong teachers' over-reliance on the use of textbooks as the main teaching resource.

The advantages of curriculum integration are supported by Dewey's social learning theory, Vygotsky's zone of proximal development, theories of multiple intelligences and brain research. Student benefits arising from a student-centered approach include catering to individual learning differences, holistic and real-life related learning opportunities, more flexibility in learning and assessment, and less stress from traditional examinations. Students are stimulated to learn cooperatively by helping each other. It also helps them to develop better personality, attitudes, self-confidence and problem solving abilities. Therefore, it is beneficial for the future of Hong Kong if the above-mentioned abilities of students are developed and enhanced by means of the implementation of curriculum integration in schools. For the future, teachers have to commit themselves to support the development of curriculum integration.

According to the literature review, as mentioned in Section 2.2 of Chapter 2 (p.32), it is claimed that in the integrated curriculum program students do as well or better than students in traditional programs; and that the results of traditional measures of

academic achievement of students follow the same pattern. Relevant findings from this study echoed the arguments on student achievement as raised by the literature although no direct measures were obtained. However, regarding the strength and weakness of integrated curriculum, Wolfinger & Stockard (1997, p.13) claim:

Its strengths lie in its organization, authenticity of subject matter and assessment, attention to conceptualization rather than memorization, student autonomy, attention to the problem solving, development of interpersonal skills, and attention to the variety of learning modalities among children. The weaknesses of integrated curriculum pattern lie in its internal organization, particularly in the development of sequential learning, in the difficulty of coordinating the program from grade level to grade level, in the amount of paperwork necessary to document the education program and progress of children, and in the implementation of the program.

According to Wolfinger & Stockard, the strength of an integrated curriculum are many while its weakness, also the weakness of a subject-bounded curriculum as identified by the present study in Section 4.2.1 of Chapter 4 (p.94), arises from the longitudinal problem such as how to organize learning among grade levels. Regarding sequential learning, for the benefit of primary school students, the subject sequence integration, in addition to the inter-subject integration, should also be observed among

kindergarten, primary and junior secondary curriculum. Strong communication between teachers of various levels and parental support may help. It seems something should be done to re-organize the current primary school curriculum. The enhancement of curriculum integration in schools should be one of the solutions. On the rationale for curriculum integration, Drake (1998, p.24) argues:

Curriculum integration is only a small part of the large shift occurring in educational thinking today. The world we are living in is changing, and education must change with it. If we live in an interconnected and interdependent world, it only makes sense that knowledge is presented as interconnected and interdependent.

Furthermore, with the birth of the postmodern age and the information era, one of the greatest challenges for educators and learners is 'nothing lasts but change'. What they need is to know where to obtain up-dated information; how to retrieve the information; and how to apply it to solve daily-life problems. If this is true in this new era, the most valuable contribution that teachers could give their students is the ability to become independent and life-long learners. Just as the world has changed, so must the education system.

Regarding the nature of change, Fullan (1993) claims that change is a complex, continuous, and never-ending phenomenon because the universe is undergoing major

change in every aspect. Since the introduction of the Activity Approach in 1975, the Education Commission planned to launch the 'Review of Education System' in Hong Kong and this began in September 1999. Accordingly, the Curriculum Development Council (CDC) has launched the 'Holistic Review of the Hong Kong School Curriculum' which proposed an open, flexible and coherent curriculum framework with eight Key Learning Areas (KLAs) for school curriculum from the year 2000 onward. As such, there is an urgent need to enhance the implementation of curriculum integration in Hong Kong's primary school curriculum. According to the findings of the present study, it was found that teachers perceived various degrees of importance for individual KLAs. Furthermore, teachers teaching the so-called "traditional minor subjects" indicated even stronger disagreement with regarding Physical Education as a major part of an integrated curriculum. Therefore, such a belief coming from classical humanism may hinder the development of curriculum integration in primary schools. As a result, it is very critical for Hong Kong's primary school teachers not to carry the negative legacy of classical humanism that views student learning as a cultural heritage and predetermined curriculum. Teachers should bear in mind not to satisfy the adult desire to push their own interests onto children. Furthermore, on the effects of integrated curriculum, it is necessary to note what Vars (1996b, p.159) has argued:

Research on the effects of interdisciplinary curriculum and instruction affirms the benefits of these approaches, but warns against raising unrealistic expectations in the minds of teachers, students, or parents. In addition, the research illustrates the complexities of making a fair and comprehensive assessment of any interdisciplinary approach. It also points out the need for wise leadership in planning, implementing, and evaluating such a program.

In this regard, teachers may not object to the implementation if curriculum integration is beneficial to students and important for solving some of the problems in the primary school curriculum. However, teachers may not be so certain of the need to reduce subject boundaries and they may have diversified interpretations of the meaning of curriculum integration. At the beginning, there may be a need to implement both integrated curriculum and subject-bounded curriculum simultaneously if not all the curriculum contents are found to be appropriate or suitable for the integration. It is necessary for the policy makers and Hong Kong's primary schools to set realistic targets and expectations, in addition to continuous evaluation and monitoring, in the implementation of curriculum integration. For teachers, it is also vital to bear in mind the strengths and weaknesses of integrated curriculum in order to maintain a balance in teaching. In the end, the ultimate target may aim at authentic integration as raised by Beane (1997) in Section 2.1.1 of Chapter

2 (p.26). Looking ahead to the proposed open, flexible and coherent proposed curriculum framework for the year 2000 onward, student learning should be related to real life and the world, which naturally implies authentic integration of the eight Key Learning Areas without purposeful focus on individual areas.

6.1.2 Primary school teachers' perceptions concerning obstacles needed to be overcome in the implementation of an integrated curriculum

The present study has shown those teachers who perceive benefits, such as the improvement of teaching and learning, express willingness to participate in curriculum integration. Individual teachers who perceive certain drawbacks, such as the difficulties in creating a balance between an integrated curriculum and a subject-bounded curriculum, possible decline in student performance, stress and heavy workload, and the lack of a collaborative culture in school are somewhat reluctant to become involved. Some teachers were interested enough to want to know more about the innovation or they claimed that they were not well informed on the details of the innovation. It is crucial that a majority of teachers are willing and committed to be involved and well equipped for the change. Regarding the effects of curriculum integration on teachers, it brings a changing role for them. As a consequence, teachers need to upgrade themselves by learning more about the innovation by working collaboratively in teams with other teachers of diverse

expertise.

However, teachers were very worried about the stress and extra workload brought by the advent of curriculum integration alongside too many reforms in primary schools.

Thus, it is critical that the benefits are seen to outweigh the extra workload and stress brought by the implementation of curriculum integration. Policy makers as well as the school administrators need to handle the problem carefully in order to avoid teacher burnout in primary schools. Furthermore, one of the main difficulties arises from the need for more cooperation among the subject departments within individual schools.

Therefore, the establishment of a collaborative culture is vital for primary schools intent on implementing curriculum integration; and this is not an easy task for them to achieve. Nevertheless, it was also found that teachers kept on identifying their status as subject specialists and the anticipated conflicts among teachers from different subject departments could not be minimized. Therefore, these may be the negative factors for the implementation of curriculum integration in Hong Kong's primary schools since cooperation across the subject boundaries does not seem easy to achieve.

In addition, these schools also need to establish networks and links with the community to provide more opportunities for student learning. All these features demand high quality leadership and management in schools.

Drake (1998) argues that internal obstacles to curriculum integration can best be dealt

with by allowing time for collaborative planning, in-servicing, and classroom experimentation. She further suggests that there are also external barriers involving the whole school, system, region, and province or state. Drake's classification of the internal obstacles are similar to those found in this study: namely extra stress and workload, worry of possible decline in student achievement, teacher's lack of knowledge, competence, contribution, commitment, collaborative culture, and a lack of quality leadership in schools. External barriers apply to recognition from the public and government policy on problems such as too many reforms, public examinations and admission requirement for further studies, concrete support involving time and resources. These obstacles need to be removed before curriculum integration really can secure a place in the primary school curriculum.

6.1.3 Primary school teachers' perceptions concerning teaching strategies, professional development, resources and support teachers needed for the implementation of curriculum integration

Regarding different approaches to curriculum integration, in this study, the modular approach within individual subjects received the least agreement when compared with the other suggested forms of curriculum integration. This indicates that teachers perceived subject boundaries and integration within one single subject as the barriers to further student benefit. Integrations involving different subjects coupled with

thematic approaches that ignore subject boundaries were considered of better student benefit. It may be argued that this solution is nearer the end of a “Continuum of Integration” as outlined in Section 2.1.2 of Chapter 2 (p.28). The recently proposed ‘open, flexible and coherent curriculum framework’ by the CDC, involving key learning areas, was considered of the second least student benefit. Since this model is perhaps unfamiliar to teachers, policy-makers should provide further information about this form of curriculum framework. In addition, various approaches to curriculum integration can be decided by considering the context in which they are used, preferably starting from lower to higher levels of integration with regard to a balance between the disciplines and their integration across subject boundaries.

Furthermore, some approaches to curriculum integration involve team teaching. On this aspect, Drake (1998, p.192) suggests that it is helpful to remember the following stages of this group process:

1. Form: these are the initial stages of the group getting to know one another.
2. Storm: inevitable conflict.
3. Norm: the group comes together to develop group norms.
4. Perform: the norms are established and the group can now get down to the task.

It is therefore important for policy makers to recognize that these processes take time

and that strong support is required particularly in stages one and two as suggested above. In teaching an integrated curriculum, it is also very important for the teachers to make use of a variety of teaching resources other than textbooks. Hong Kong teachers have the reputation of relying too much on the use of textbooks as the main teaching resource. In dealing with the most difficult areas in teaching an integrated curriculum, the use of organizing centers for reality-based learning, uses of appropriate teaching strategies aiming at students' active participation in learning for individual differences, and the introduction of portfolios or projects for authentic assessment are possible means for teachers concerned to solve the relevant problems.

On the other hand, depth and breadth in learning as well as positive attitudes found in students are said to be promoted by curriculum integration. This may be the reason why teachers disagreed with the saying that motivating student learning is the most difficult task in teaching an integrated curriculum. Moreover, it is important to change the teacher's role by applying information technology (IT) as a tool for teaching and learning in the integrated curriculum. IT matches the rationale of curriculum integration regarding students' self-learning, learning how to learn, holistic learning, problem solving and so on.

Jennings (2000, p.75), on the professional development needs of teachers for delivery of the curriculum in the 21st century, argues:

They will need to move beyond the provision of basic literacy and numeracy, face the challenge of rapidly developing instructional technologies, fight to maintain control of the curriculum at the local level, come to terms with globalisation, and refine their skills in accessing and developing high quality resources.

With regard to the professional development of teachers, it is essential to provide teachers with the fundamental and necessary knowledge and skills for the implementation of curriculum integration. School-based professional development can be offered by government officials or experts from the universities. It is necessary to create some workable materials that teachers can use according to existing classroom situations and the reality of primary schools. Forms of in-service programme may include workshops or seminars, study groups, visits to other schools, and partnerships or networks with teachers in other schools. Support from the school management to encourage teachers' participation in these activities is vital.

Regarding the benefit, other than providing more time and flexibility for teaching, this comes from the changing role of teachers. Teachers need to upgrade themselves by knowing more about the innovation, making good use of community resources for teaching and working collaboratively in teams with other teachers with diverse expertise. The role of class teachers can be associated with the introduction of

block-time classes for the teaching of integrated curriculum in schools. In short, teachers performing different responsibilities in school such as the Class Teacher, Extra-Curricula Activities coordinator, Curriculum Development coordinator, Information Technology coordinator, Civic Education coordinator and Subject Head, all can contribute to the implementation of curriculum integration in their own roles.

However, teachers in this study were more concerned with personal factors such as reducing the extra workload that innovations bring. The policy-makers need to find solutions for dealing with these personal factors in the implementation of curriculum integration.

Finally, there is an urgent need for the policy-makers to establish explicit linkage between the teaching content of the integrated curriculum in schools and the content of centrally administrated assessment. Failing to do this may hinder the development of curriculum integration. In addition, learning lessons from previous reforms is also a vital part of reflection and evaluation in policy making.

6.1.4 Differences within the sample group

So far this study has portrayed the views of the typical Hong Kong primary school teachers on curriculum integration, based on aggregates of the total sample. There are, however, some variations among individual sample groups. Male teachers were more concerned with the heavy workload brought by teaching an integrated curriculum than

the female teachers. In addition, they felt equipped to participate in curriculum integration, were willing to work collaboratively with other teachers, and wanted to get more information about curriculum integration. Similar perceptions were found in individual groups of teachers having different backgrounds. Therefore, some groups of teachers were more confident than others in their involvement in curriculum integration and were also willing to work collaboratively with others. Graduate teachers appeared to be more positive in this respect. Teachers having more than 20 years of teaching experience were more supportive of the integration of several subjects regarding student benefits than teachers having less than 6 years of teaching experience. There is, therefore, a need to study whether the currently implemented General Studies is a good example for the further integration of other relevant subjects in the primary school curriculum. Teachers teaching upper primary regarded motivating student learning as the most difficult task compared to their lower primary colleagues. English teachers were more positive towards the integrated curriculum regarding student performance in traditional standardized tests but were less sure about using the modular approach in teaching regarding student benefits. Chinese teachers requested more professional development in the use of IT in teaching integrated curriculum. Teachers teaching the 'minor subjects' were more classically

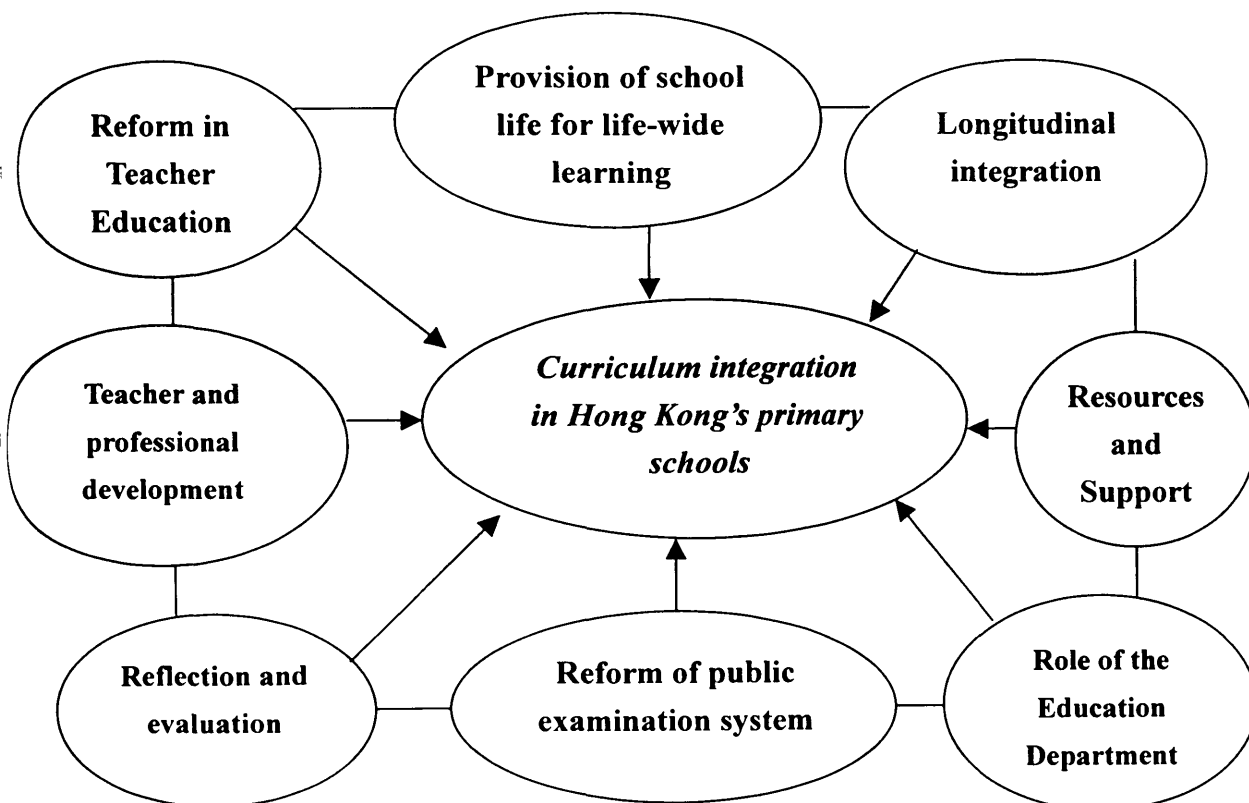
humanistic in regarding Physical Education not as a major part of an integrated curriculum. This belief could hinder the development of curriculum integration in primary schools. A majority of teachers felt the stress from both the extra workload and too many innovations in primary schools. Teachers teaching the real-life themes were more supportive to the thematic approach regarding student benefits, and they did not consider getting students to learn in groups as the most difficult task in teaching an integrated curriculum. Teachers from the whole-day schools did not regard strong subject boundaries as barriers in relating school curriculum to real-life, and whole-day schooling may be a positive factor for the implementation of curriculum integration. However, teachers from the schools in New Territories were less classically humanistic in regarding Arts Education as a major part of an integrated curriculum, and they were more supportive to the establishment of collaborative culture in schools. These may be the positive factors for the development of curriculum integration in these schools.

In short, although fixed patterns cannot be found, the above-mentioned implications may be regarded as critical issues in the implementation of curriculum integration. It would be valuable to conduct further study or research on these topics for the development of curriculum integration in Hong Kong's primary schools.

6.2 Recommendations for the future policy on the implementation of curriculum integration based on teacher concerns

The following are the recommendations proposed for the successful implementation of curriculum integration in Hong Kong's primary schools based on the teacher concerns identified from the present study. The main features of the recommendations are illustrated in Figure 6.1:

Figure 6.1: Recommendations for the implementation of curriculum integration in Hong Kong's primary schools



6.2.1 The provision of school life contributing to life-wide learning

According to the definition of life-wide learning proposed by the Education Commission (1999a), learning is not limited to textbooks, school subjects or examination syllabuses. Students should have a comprehensive learning experience through the integration of formal, non-formal and informal curriculum. As such, life-wide learning should involve the attainment of life skills such as problem solving skills, inquiry skills, social skills, and communication skills. It seems there is no conflict between the rationales of life-wide learning and curriculum integration. Therefore, enhancing the teaching of integrated curriculum in schools can provide students with better life-wide learning opportunities.

In order to enhance life-wide learning in schools, the holistic review that is currently being conducted by the Curriculum Development Council on the Hong Kong school curriculum should be extended. Learning should no longer focus only on academic subject contents, but also incorporate informal and non-formal activities that meet the needs of students as well as the aims of education. First, the present extra-curricular activities in the primary schools should be made compulsory and be part of the school timetable. Second, it is very important for the teachers to make use of a variety of teaching resources other than the textbooks in teaching an integrated curriculum. Since the publication of textbooks is the business of the commercial publishers, there

is an urgent need for teachers' participation in the preparation and production of these teaching resources. In addition, learning activities should make use of community resources such as public parks, libraries, museums, youth centers and so on. Third, by means of the establishment of the Parent Teacher Association(PTA) in every school, parents can play a critical role in providing advice/ supervision in students' activities. They may also participate in organizing various learning activities. The education of parents to raise understanding regarding the education of their children should be promoted. Ways should be extended to allow them to air their proper concerns.

6.2.2 Longitudinal integration

In addition to the lateral integration, there is an ongoing need to bridge the longitudinal learning gaps between the kindergarten and primary curriculum, and between the primary and junior secondary curriculum. Students may encounter difficulties in adapting to the teaching styles of teachers, studying different curriculum and participating in extra-curricular activities. Therefore, with a view to helping pupils in the transitional period, well-organized functions and activities such as school visits, curriculum meetings and seminars should be arranged between teachers of primary and junior secondary levels, and between teachers of kindergarten and primary levels. The purpose would be to discuss and exchange views on teaching and learning matters involving curriculum integration between different grades or levels,

key learning areas, change of teaching styles and assessment mode, and the communications and cooperation with parents.

6.2.3 Teacher and professional development

Teachers need whole-school involvement in curriculum integration. Top down innovations generally fail. If teachers accept the change, believe the change enhances student learning, have a say in what is going into change, they will involve themselves in the innovation. At first, they may strongly object to the change. However, as curriculum integration becomes a fact of life, they will try to adapt to it. Nevertheless, their attitude may be passive rather than active at the beginning. If they do not have enough support, they may feel helpless. Collaborative cultures among teachers should be established to help each other during this transitional period. For the future needs of Hong Kong society, primary school teachers have to commit themselves to support the implementation of curriculum integration. As mentioned in Section 2.2.3 of Chapter 2 (p.40), Drake (1998) has contended that a teacher is no longer necessarily the expert in the classroom; rather, he or she now models the lifelong learner that the students are encouraged to be. Therefore, there is a need to persuade teachers that a teaching career needs to face continuous change including curriculum change. They need good teacher networks, a systematic arrangement to work in teams and a collaborative culture. In addition, teachers need to refer to the objectives of

curriculum integration constantly. They should not deviate from its aims.

As for the fresh graduates from the teacher training institutions, school heads and other experienced teachers will expect them to understand curriculum integration better than themselves. Yet these new teachers may not actually be that proficient, either in knowledge or practice. They need to be confident and have the determination to face the change. On teacher's part in curriculum reform, Cuban (1996) insists on gaining teachers' commitment to the purpose of reform, not only for designing administration policies, to minimize teacher effects from the curriculum. Moreover, as mentioned in Section 2.2.3 of Chapter 2 (p.38), the Chief Secretary for Administration of SAR suggested the public had placed very high expectations on the teachers for cultivating student's abilities. As such, for the future of Hong Kong society, it is vital whether or not teachers commit themselves by becoming involved in the development of curriculum integration in schools.

Since teachers need to plan and design various learning activities, and to adapt various teaching strategies in teaching an integrated curriculum, professional development of teachers becomes an important issue. First, the professional competence of teachers in teaching an integrated curriculum can be enhanced through in-school and school-based programs or workshops organized jointly by the school themselves, relevant tertiary institutions and the Education Department. Second, the publication of

periodicals or magazines on curriculum integration in schools is worthwhile. Third, the establishment of exchange programs among local and overseas schools and institutions could help to provide invaluable sharing of professional experience for teachers. Fourth, there is an urgent need for all teachers to study at degree level or above to expand their knowledge base and improve their pedagogy with effective teaching strategies. Lastly, frequent visits to schools, resources sharing among the network schools other than the reliance on commercial textbooks, peer-group observations are further possible ways of enhancing the understanding of curriculum integration.

6.2.4 Reform in teacher education

For the prominent teacher training institutions like the Hong Kong Institute of Education (HKIEd), all pre-service and in-service programs should be upgraded to include degree level or above as soon as possible. There is an urgent need to strengthen teacher-training programmes regarding teaching integrated curriculum in Hong Kong's primary schools. Since the current courses may not prepare teachers well for handling curriculum integration, attention should be paid to including the topic in the various course content.

For teachers attempting to teach an integrated curriculum in classrooms there are many issues that they are still unable to master fully: planning of instruction, the use

of teaching and assessment techniques, communication with parents, demands from schools and students. However, there is always a gap between theory and practice in teaching. Before graduation, student teachers need to understand the relevant concepts and aims of curriculum integration, say, how to eliminate teachers' belief in the negative legacy of classical humanism in curriculum planning. They should also know about the difficulties such as individual differences and multiple-intelligences they might face in classrooms, the different roles of the teacher in the implementation, and the need for improvement in teaching techniques. After their graduation, other than the in-service retraining courses, school support including school-based curriculum development, teaching and assessment development, consultancy, joint projects and on line support should also be provided for new teachers.

Furthermore, teacher educators need to explore more about the context, theory and practice of curriculum integration. They should have close contact with teachers at the frontier by identifying the obstacles to successful implementation of curriculum integration in schools. Lecturers at the teacher training institutions need to keep themselves informed of the updated development regarding international context and government policy in curriculum integration. Paying visits to foreign countries may help considerably. Furthermore, a focus group should be formed and be encouraged to carry out research focusing on issues concerning curriculum integration. Lecturers

should also be encouraged to ground their teaching on applied research outcomes such as academic books, reports and journal articles, to enhance individual's beliefs in the implementation and evaluation of the curriculum reform. The above-mentioned publications may also help to shape the beliefs of student teachers and subsequently the development of curriculum integration in Hong Kong.

6.2.5 Education Department

Although a majority of teachers accept curriculum integration and agree to the direction of change, they are not confident with it. Teachers may not know enough about what curriculum integration is and they need to know more about the concepts and practical aspects. Perhaps a small number of them have been able to face the change, review their teaching techniques, plan a lesson and use ICT in teaching. However, there is a real need for the Education Department (ED) to design and distribute pamphlets about curriculum integration to introduce and promote the change. The ED should act as the leader in this aspect and has to support teachers by various means. Moreover, the ED and the teacher training institutions should have some forms of communication so that they do not duplicate the professional programmes they offer. They should establish a consensus and they should share and take up the responsibilities for greater support. Stronger linkage should be setup between the ED and the teacher training institutions. Failing this is dangerous because

teacher educators in, for example, the HKIEd, may fall behind the pace of curriculum change in practical aspects. Likewise, the staff in the ED may fall behind the pace of curriculum change in theoretical and academic aspects.

6.2.6 Reform of the public examination system

On one hand, in order to enhance the multiple intelligences of students, school curriculum should be flexible and students should be provided with various learning opportunities. The great stress on examinations in the education system should be released by assessments over a range of considerations on student achievement. Authentic assessment, which includes the use of portfolios and project method, should be promoted in teaching an integrated curriculum. On the other hand, student learning in integrated curriculum should be explicitly linked to the learning in further studies or university. As such, there is an urgent need for the policy makers to set up and announce, as soon as possible, the explicit linkage between the content of the integrated curriculum in schools with the mechanism of the centrally administrated assessment for further studies. Failing this could definitively hinder the development of curriculum integration in Hong Kong's primary schools.

6.2.7 Resources and support

Regarding the implementation of curriculum integration, teachers need to obtain information from the resource center such as the background of the curriculum change

and the implementation in other countries (difficulties, history and experiences). From a practical point of view, materials on how to plan and produce teaching materials and aids other than the textbooks, how to use IT in teaching and so on, should be setup systematically so that teachers are able to have access to them easily. To implement curriculum integration, teachers need to refer to exemplar tasks, worksheets, teaching aids, teaching materials and assessment samples from other schools. It is necessary to design and produce some workable materials that teachers can use according to classroom situations and the reality of primary schools. Therefore, for this purpose, centralized resource centers should be established as soon as possible.

Other support may include improving teacher-student ratio, enhanced capacity for teaching preparation, workload reduction and official recognitions or awards from the public including parents. According to the literature review as well as the findings from this study, very often it is rather difficult for teachers to find sufficient or extra time for the preparation of teaching an integrated curriculum. In addition, the findings of the current study reveal that teachers were much more concerned with personal factors such as reducing the extra workload which the innovation brings. Therefore, when scheduling for time, primary school teachers should consider allocating a block of common preparation time for teaching, short periods of time for ongoing planning and evaluation as well as daily breaks for solving unexpected incidents. The

extending of the daily working hours, say 15 to 30 minutes may help to solve this problem. Finally, schools leaders should provide teachers with more opportunities to observe the teaching of the integrated curriculum. These include the sitting-in, class observation, communication and sharing among teachers.

6.2.8 The need for reflection and evaluation

Teachers need to reflect to see if the path of the current curriculum change is right or wrong. From the findings of documents and researches from foreign countries, they will be able to see if changes are realistic for the Hong Kong context. If they find that the current direction of change is biased then they should be brave enough to express their opinions to the policy makers. Many teachers support the implementation of curriculum integration; they believe it is worth trying, although some of them are against the pace of implementation. To implement a curriculum reform, teachers must be persuaded to accept the new curriculum. It is not unusual for a teacher to accept curriculum integration but do something else in the classroom. Only through classroom observation can someone know if a teacher is implementing curriculum integration. It is only after teachers have accepted the rationale of curriculum integration that they are willing to sacrifice their time to work for it. A curriculum change needs determination and patience. Teachers are the key to curriculum change. However, Hong Kong's actual situation does not allow teachers to be the key. Policy

makers and school management should provide and allow more opportunities for teachers to participate in the curriculum change. If teachers perceive curriculum integration as a top down innovation, there will be more resistance to change. If the curriculum reform is to be successfully implemented in Hong Kong's primary schools, another urgent need concerns quality leadership to help teachers adapt to the change. In addition, lessons including consistency in policy-making and sufficient time for change should be learned from past innovations such as the Target Orientated Curriculum. In order to minimize the difficulties in the implementation, the problems of heavy and extra workload for teachers and the conflicts and tension created by changing the long-established arrangements within individual school should be noted and tackled. Only surface changes will result if the government proposes too many innovations and lacks a long-term commitment to the innovations.

6.3 Concluding comment

There is further research that needs to be done on the topic of curriculum integration in Hong Kong. Generalization of the results of the present study may be limited by the choice of sampling, sample size, and time factor. With regard to the limitation of the current study as mentioned in the methodology chapter as well as the issues raised in Section 6.1.4 (p.187) of this chapter, possible research areas include the study of whether curriculum integration would be different at different grade levels or by

different approaches, type of schooling, and in schools located in different districts/regions of Hong Kong. As indicated by the government statistics in Table 3.1 of Chapter 3 (p.63), the group of teachers having 6-20 years of primary school teaching experience only caters for 48.5% of the total population of Hong Kong's primary school teachers. Therefore, other possibilities involve the study of whether curriculum integration would be different for teachers of different experience, gender, training and expertise. Longitudinal studies of teams of teachers could be started from the onset in working with curriculum integration through the subsequent years.

Furthermore, it does not seem easy for students whose education involves mainly a traditional subject-bounded curriculum as in Hong Kong's primary schools, which makes them the passive recipients of education, to integrate and apply what they learn in the school to other settings such as daily life problems. The movement to integrate curricula in Hong Kong's primary schools provides, hopefully, all students with the abilities and skills such as problem solving, reasoning, creativity, and interactive learning. Integrated learning also restores meaning and relevance to the student's experience of schooling, transforming what in too many schools is a disjointed series of subjects into a meaningfully integrated, holistic education that demonstrates to students how education applies to real life. This is necessary for preparing Hong Kong people for life-long learning, future employment and the challenges in the 21st

century.

However, there is no need for teachers to rush to integrate everything. For individual schools there should be a school policy which caters for the common approaches to curriculum integration. Teachers may apply various approaches simultaneously including modular, cross-curricular and thematic approaches within the open, flexible and coherent curriculum framework involving key learning areas to help students extend their knowledge of the world. Curriculum integration should not be implemented in schools without adequate preparation or support. The critical factors for success are many. Nevertheless, the key factors should include the teacher's knowledge of and support for the curriculum change, his/ her competence in teaching, further professional development, relief of stress and extra heavy workload, and finally the collaborative culture in schools. On the implementation of curriculum integration, Beane (1997, p.103) points out, "While the gains are still relatively small, the challenges great, and the obstacles large, curriculum integration fares well today, and it will not go away." Regarding the implementation of curriculum integration in Hong Kong's primary schools, there will, hopefully, be foreseeable benefits including more effective and worthwhile teaching; more holistic and meaningful learning; and, more coordination between regular and special learning catering for the needs of students.

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Appendix A:
Sample of Questionnaire

Survey Questionnaire: Curriculum Integration in Primary Schools

(Strictly Confidential)

Please tick (V) the correct answer(s).

Section A: Some information about yourself

1. Gender:	F <input type="checkbox"/> M <input type="checkbox"/>
2. Teacher Training (highest qualification):	Teacher's Cert. <input type="checkbox"/> BEd or above <input type="checkbox"/>
3. Years of primary school teaching:	Less than 6 <input type="checkbox"/> 6-10 <input type="checkbox"/> 11-15 <input type="checkbox"/> 16-20 <input type="checkbox"/> More than 20 <input type="checkbox"/>
4. Main teaching group:	Upper primary <input type="checkbox"/> Lower primary <input type="checkbox"/>
5. Main teaching subject: (more than one choice)	Chinese <input type="checkbox"/> Maths. <input type="checkbox"/> Art <input type="checkbox"/> Music <input type="checkbox"/> English <input type="checkbox"/> General Studies <input type="checkbox"/> Physical Ed. <input type="checkbox"/> Computer Studies <input type="checkbox"/> Others <input type="checkbox"/> _____
6. Teaching experience of integrated curriculum: (more than one choice)	Modular Approach within subjects <input type="checkbox"/> Cross-curricular Approach <input type="checkbox"/> Real-life Thematic Approach <input type="checkbox"/> Others <input type="checkbox"/>
7. Type of schooling:	Bi-sessional <input type="checkbox"/> Whole-day <input type="checkbox"/>
8. School funding:	Public Sector <input type="checkbox"/> Private <input type="checkbox"/>
9. School district:	Hong Kong Island / Kowloon <input type="checkbox"/> New Territories <input type="checkbox"/>

Section B: Context

Strongly Disagree *Disagree* *Agree* *Strongly Agree*

In the **information-based era**:

	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>
1. There is some overlapping among the subjects in the Primary school curriculum.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2. It is claimed that lateral coherence across some of the subjects needs to be developed.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3. There is a need to bridge the learning gaps between 'Kindergarten' and 'Lower Primary' school curriculum.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4. There is a need to bridge the learning gaps between 'Upper Primary' and 'Secondary' school curriculum.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5. Strong subject boundaries are barriers to relating school curriculum to real-life.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6. It needs to re-organize the whole subject-based curriculum with curriculum integration.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

The following **key learning areas** should be a **major part** of an integrated curriculum:

7. Physical Education	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
8. Chinese	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
9. Science	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
10. Arts Education	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
11. Technology Education	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
12. Personal, Social & Humanities Education	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
13. Mathematics	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
14. English	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Section C: Theory

In **comparison** with the subject-bounded curriculum, the **integrated curriculum** is more likely to:

1. Be a time-consuming endeavor.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2. Enhance students' whole-person development.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3. Facilitate links among classroom, school and daily-life learning.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4. Cause students to underachieve on traditional standardized tests.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5. Provide students with life-long learning skills and attitudes.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6. Be worth providing with a large amount of resources.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
7. Accommodate new needs of the society.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Students benefit most in an integrated curriculum by:

8. A modular approach within individual subjects.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. Integration of several subjects (e.g. General Studies programme).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. Cross-curricular approaches involving several subjects (e.g. Civic, Moral, Consumer, Environmental & Sex Education).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11. Real-life thematic approaches that ignore subject boundaries.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12. Open and flexible frameworks with key learning areas rather than teaching according to the textbooks.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Section D: Practice

Regarding **implementing** an integrated curriculum:

1. You would like to get more information.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. You feel equipped to participate.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. You would like to work collaboratively with other teachers (e.g. team teaching).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. You are no longer a subject specialist.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. You have extra workload.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. You are frustrated by too many innovations in primary schools.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

When teaching an integrated curriculum, your **most difficult task** is:

7. Developing instructional plans.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. Motivating student learning.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. Instructing students directly.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. Getting students to learn in groups.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11. Structuring activities to help students ask questions.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12. Observing what is happening regarding student learning.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13. Catering for individual learning needs.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14. Using information and communication technology.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15. Assessing student learning using various methods of assessment.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

The **success of implementing** an integrated curriculum **mainly** depends on:

16. Consistency in policy.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
17. More time for the reform.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
18. A reform of the existing public examination system.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
19. A centralised resource center.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
20. Leadership in school.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
21. A climate of cooperation among colleagues in schools.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
22. Teachers' recognition of the curriculum innovation.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
23. Public recognition of teachers' efforts.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
24. A better teacher-student ratio.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
25. More clerical support for teachers.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
26. Further professional development of teachers.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Regarding teaching an integrated curriculum, **professional development** in which **teachers benefit most** is:

27. School-based training with external support.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
28. School-based training in which teachers work collaboratively to develop effective practice.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
29. Part-time in-service courses.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
30. Full-time block-release courses.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Section E: *Three* important factors/ suggestions you would mention in order to help the implementation of curriculum integration:

1.
2.
3.

(End of questions)

Thank you for your valuable input!

Appendix B:

Statistical data of the questionnaire survey

(Section A – Frequencies Table)

SPECIAL NOTE

**THIS ITEM IS BOUND IN SUCH A
MANNER AND WHILE EVERY
EFFORT HAS BEEN MADE TO
REPRODUCE THE CENTRES, FORCE
WOULD RESULT IN DAMAGE**

ency Tabl

A1_GENDE

	Frequency	Percent	Valid Percent	Cumulative Percent
female	106	78.5	78.5	78.5
male	29	21.5	21.5	100.0
Total	135	100.0	100.0	

A2_QUAL

	Frequency	Percent	Valid Percent	Cumulative Percent
Teacher's Cert.	89	65.9	65.9	65.9
BEd or above	46	34.1	34.1	100.0
Total	135	100.0	100.0	

A3_EXP

	Frequency	Percent	Valid Percent	Cumulative Percent
0-5 yrs	8	5.9	5.9	5.9
6-10 yrs	63	46.7	46.7	52.6
11-15 yrs	23	17.0	17.0	69.6
16-20 yrs	15	11.1	11.1	80.7
21-30 yrs	26	19.3	19.3	100.0
Total	135	100.0	100.0	

A4_LEVEL

	Frequency	Percent	Valid Percent	Cumulative Percent
upper primary	89	65.9	65.9	65.9
lower primary	46	34.1	34.1	100.0
Total	135	100.0	100.0	

A5_1_CHI

	Frequency	Percent	Valid Percent	Cumulative Percent
no	51	37.8	37.8	37.8
yes	84	62.2	62.2	100.0
Total	135	100.0	100.0	

A5_2_MAT

	Frequency	Percent	Valid Percent	Cumulative Percent
no	55	40.7	40.7	40.7
yes	80	59.3	59.3	100.0
Total	135	100.0	100.0	

A5_3_ART

	Frequency	Percent	Valid Percent	Cumulative Percent
no	99	73.3	73.3	73.3
yes	36	26.7	26.7	100.0
Total	135	100.0	100.0	

A5_4_MUS

	Frequency	Percent	Valid Percent	Cumulative Percent
no	109	80.7	80.7	80.7
yes	26	19.3	19.3	100.0
Total	135	100.0	100.0	

A5_5_ENG

	Frequency	Percent	Valid Percent	Cumulative Percent
no	81	60.0	60.0	60.0
yes	54	40.0	40.0	100.0
Total	135	100.0	100.0	

A5_6_GS

	Frequency	Percent	Valid Percent	Cumulative Percent
no	74	54.8	54.8	54.8
yes	61	45.2	45.2	100.0
Total	135	100.0	100.0	

A5_7_PE

	Frequency	Percent	Valid Percent	Cumulative Percent
no	98	72.6	72.6	72.6
yes	37	27.4	27.4	100.0
Total	135	100.0	100.0	

A5_8_COM

	Frequency	Percent	Valid Percent	Cumulative Percent
no	125	92.6	92.6	92.6
yes	10	7.4	7.4	100.0
Total	135	100.0	100.0	

A5_9_OTH

	Frequency	Percent	Valid Percent	Cumulative Percent
no	118	87.4	87.4	87.4
yes	17	12.6	12.6	100.0
Total	135	100.0	100.0	

A6_1_MOD

	Frequency	Percent	Valid Percent	Cumulative Percent
no	46	34.1	34.1	34.1
yes	89	65.9	65.9	100.0
Total	135	100.0	100.0	

A6_2_CRO

	Frequency	Percent	Valid Percent	Cumulative Percent
no	78	57.8	57.8	57.8
yes	57	42.2	42.2	100.0
Total	135	100.0	100.0	

A6_3_THE

	Frequency	Percent	Valid Percent	Cumulative Percent
no	99	73.3	73.3	73.3
yes	36	26.7	26.7	100.0
Total	135	100.0	100.0	

A6_4_OTH

	Frequency	Percent	Valid Percent	Cumulative Percent
no	135	100.0	100.0	100.0

A7_SESS

	Frequency	Percent	Valid Percent	Cumulative Percent
bi-sectional	92	68.1	68.1	68.1
whole-day	43	31.9	31.9	100.0
Total	135	100.0	100.0	

A8_FUND

	Frequency	Percent	Valid Percent	Cumulative Percent
public sector	132	97.8	97.8	97.8
private	3	2.2	2.2	100.0
Total	135	100.0	100.0	

A9_REGIO

	Frequency	Percent	Valid Percent	Cumulative Percent
HK Island	74	54.8	54.8	54.8
New Territories	61	45.2	45.2	100.0
Total	135	100.0	100.0	

Appendix C:

**Statistical data of the questionnaire survey
(Sections B, C and D – Frequencies Table)**

Statistics

	C7	C8	C9	C10	C11
Valid	135	135	134	135	135
Missing	0	0	1	0	0
	3.0444	2.7556	3.0746	3.0222	3.0444
Error of Mean	4.318E-02	4.135E-02	4.320E-02	4.757E-02	5.348E-02
Deviation	.5017	.4805	.5000	.5527	.6213
MIN	2.00	2.00	2.00	1.00	1.00
MAX	4.00	4.00	4.00	4.00	4.00

Statistics

	C12	D1	D2	D3	D4
Valid	135	135	135	133	134
Missing	0	0	0	2	1
	2.8741	3.2519	2.5852	2.7669	2.4328
Error of Mean	5.507E-02	4.299E-02	4.975E-02	4.993E-02	5.238E-02
Deviation	.6398	.4995	.5780	.5759	.6063
MIN	1.00	2.00	1.00	1.00	1.00
MAX	4.00	4.00	4.00	4.00	4.00

Statistics

	D5	D6	D7	D8	D9
Valid	135	133	135	134	135
Missing	0	2	0	1	0
	3.3630	3.5113	3.3333	2.4254	2.4074
Error of Mean	4.773E-02	5.296E-02	5.361E-02	5.543E-02	4.965E-02
Deviation	.5546	.6107	.6229	.6416	.5769
MIN	2.00	2.00	2.00	1.00	1.00
MAX	4.00	4.00	4.00	4.00	4.00

Statistics

	D10	D11	D12	D13	D14
Valid	135	135	134	135	135
Missing	0	0	1	0	0
	2.6519	2.8741	2.8060	3.2444	2.9704
Error of Mean	5.291E-02	4.980E-02	5.653E-02	4.757E-02	5.458E-02
Deviation	.6147	.5786	.6544	.5527	.6341
MIN	1.00	1.00	2.00	2.00	2.00
MAX	4.00	4.00	4.00	4.00	4.00

Statistics

	D15	D16	D17	D18	D19
Valid	135	135	135	135	135
Missing	0	0	0	0	0
	3.1185	3.2815	3.4889	3.3111	3.3185
Error of Mean	5.263E-02	5.004E-02	4.803E-02	4.872E-02	4.778E-02
Deviation	.6115	.5815	.5581	.5660	.5552
MIN	1.00	2.00	2.00	2.00	2.00
MAX	4.00	4.00	4.00	4.00	4.00

Statistics

	D20	D21	D22	D23	D24
Valid	135	135	135	134	135
Missing	0	0	0	1	0
	3.4222	3.5111	3.5111	3.3881	3.6593
Error of Mean	4.518E-02	4.567E-02	4.567E-02	5.071E-02	4.721E-02
Deviation	.5250	.5307	.5307	.5870	.5486
	2.00	2.00	2.00	2.00	2.00
	4.00	4.00	4.00	4.00	4.00

Statistics

	D25	D26	D27	D28
Valid	135	135	135	135
Missing	0	0	0	0
	3.6963	3.6148	3.1185	3.1630
Error of Mean	4.850E-02	4.581E-02	5.569E-02	5.383E-02
Deviation	.5635	.5323	.6471	.6254
	1.00	2.00	1.00	1.00
	4.00	4.00	4.00	4.00

Statistics

	D29	D30
Valid	135	135
Missing	0	0
	2.6296	3.3926
Error of Mean	6.286E-02	5.672E-02
Deviation	.7304	.6590
	1.00	1.00
	4.00	4.00

Frequency Table

B1

	Frequency	Percent	Valid Percent	Cumulative Percent
1.00	1	.7	.7	.7
2.00	9	6.7	6.7	7.4
3.00	108	80.0	80.0	87.4
4.00	17	12.6	12.6	100.0
Total	135	100.0	100.0	

B2

	Frequency	Percent	Valid Percent	Cumulative Percent
2.00	12	8.9	8.9	8.9
3.00	94	69.6	69.6	78.5
4.00	29	21.5	21.5	100.0
Total	135	100.0	100.0	

B3

	Frequency	Percent	Valid Percent	Cumulative Percent
2.00	9	6.7	6.7	6.7
3.00	82	60.7	60.7	67.4
4.00	44	32.6	32.6	100.0
Total	135	100.0	100.0	

B4

	Frequency	Percent	Valid Percent	Cumulative Percent
2.00	5	3.7	3.7	3.7
3.00	86	63.7	64.2	67.9
4.00	43	31.9	32.1	100.0
Total	134	99.3	100.0	
System	1	.7		
	135	100.0		

B5

	Frequency	Percent	Valid Percent	Cumulative Percent
1.00	3	2.2	2.2	2.2
2.00	52	38.5	38.5	40.7
3.00	67	49.6	49.6	90.4
4.00	13	9.6	9.6	100.0
Total	135	100.0	100.0	

B6

	Frequency	Percent	Valid Percent	Cumulative Percent
1.00	2	1.5	1.5	1.5
2.00	31	23.0	23.1	24.6
3.00	85	63.0	63.4	88.1
4.00	16	11.9	11.9	100.0
Total	134	99.3	100.0	
System	1	.7		
	135	100.0		

B7

	Frequency	Percent	Valid Percent	Cumulative Percent
1.00	5	3.7	3.7	3.7
2.00	77	57.0	57.0	60.7
3.00	52	38.5	38.5	99.3
4.00	1	.7	.7	100.0
Total	135	100.0	100.0	

B8

	Frequency	Percent	Valid Percent	Cumulative Percent
2.00	28	20.7	20.7	20.7
3.00	80	59.3	59.3	80.0
4.00	27	20.0	20.0	100.0
Total	135	100.0	100.0	

B9

	Frequency	Percent	Valid Percent	Cumulative Percent
2.00	10	7.4	7.4	7.4
3.00	97	71.9	71.9	79.3
4.00	28	20.7	20.7	100.0
Total	135	100.0	100.0	

B10

	Frequency	Percent	Valid Percent	Cumulative Percent
1.00	1	.7	.7	.7
2.00	56	41.5	41.5	42.2
3.00	69	51.1	51.1	93.3
4.00	9	6.7	6.7	100.0
Total	135	100.0	100.0	

B11

	Frequency	Percent	Valid Percent	Cumulative Percent
2.00	20	14.8	14.8	14.8
3.00	89	65.9	65.9	80.7
4.00	26	19.3	19.3	100.0
Total	135	100.0	100.0	

B12

	Frequency	Percent	Valid Percent	Cumulative Percent
2.00	15	11.1	11.2	11.2
3.00	85	63.0	63.4	74.6
4.00	34	25.2	25.4	100.0
Total	134	99.3	100.0	
System	1	.7		
	135	100.0		

B13

	Frequency	Percent	Valid Percent	Cumulative Percent
2.00	34	25.2	25.2	25.2
3.00	82	60.7	60.7	85.9
4.00	19	14.1	14.1	100.0
Total	135	100.0	100.0	

B14

	Frequency	Percent	Valid Percent	Cumulative Percent
2.00	40	29.6	29.6	29.6
3.00	76	56.3	56.3	85.9
4.00	19	14.1	14.1	100.0
Total	135	100.0	100.0	

C1

	Frequency	Percent	Valid Percent	Cumulative Percent
2.00	7	5.2	5.2	5.2
3.00	97	71.9	72.4	77.6
4.00	30	22.2	22.4	100.0
Total	134	99.3	100.0	
System	1	.7		
	135	100.0		

C2

	Frequency	Percent	Valid Percent	Cumulative Percent
2.00	10	7.4	7.5	7.5
3.00	94	69.6	70.1	77.6
4.00	30	22.2	22.4	100.0
Total	134	99.3	100.0	
System	1	.7		
	135	100.0		

C3

	Frequency	Percent	Valid Percent	Cumulative Percent
2.00	7	5.2	5.2	5.2
3.00	92	68.1	68.1	73.3
4.00	36	26.7	26.7	100.0
Total	135	100.0	100.0	

C4

	Frequency	Percent	Valid Percent	Cumulative Percent
2.00	91	67.4	68.9	68.9
3.00	37	27.4	28.0	97.0
4.00	4	3.0	3.0	100.0
Total	132	97.8	100.0	
System	3	2.2		
	135	100.0		

C5

	Frequency	Percent	Valid Percent	Cumulative Percent
2.00	16	11.9	11.9	11.9
3.00	103	76.3	76.3	88.1
4.00	16	11.9	11.9	100.0
Total	135	100.0	100.0	

C6

	Frequency	Percent	Valid Percent	Cumulative Percent
1.00	1	.7	.7	.7
2.00	18	13.3	13.3	14.1
3.00	83	61.5	61.5	75.6
4.00	33	24.4	24.4	100.0
Total	135	100.0	100.0	

C7

	Frequency	Percent	Valid Percent	Cumulative Percent
2.00	14	10.4	10.4	10.4
3.00	101	74.8	74.8	85.2
4.00	20	14.8	14.8	100.0
Total	135	100.0	100.0	

C8

	Frequency	Percent	Valid Percent	Cumulative Percent
2.00	36	26.7	26.7	26.7
3.00	96	71.1	71.1	97.8
4.00	3	2.2	2.2	100.0
Total	135	100.0	100.0	

C9

	Frequency	Percent	Valid Percent	Cumulative Percent
2.00	12	8.9	9.0	9.0
3.00	100	74.1	74.6	83.6
4.00	22	16.3	16.4	100.0
Total	134	99.3	100.0	
ng System	1	.7		
	135	100.0		

C10

	Frequency	Percent	Valid Percent	Cumulative Percent
1.00	2	1.5	1.5	1.5
2.00	13	9.6	9.6	11.1
3.00	100	74.1	74.1	85.2
4.00	20	14.8	14.8	100.0
Total	135	100.0	100.0	

C11

	Frequency	Percent	Valid Percent	Cumulative Percent
1.00	1	.7	.7	.7
2.00	20	14.8	14.8	15.6
3.00	86	63.7	63.7	79.3
4.00	28	20.7	20.7	100.0
Total	135	100.0	100.0	

C12

	Frequency	Percent	Valid Percent	Cumulative Percent
1.00	1	.7	.7	.7
2.00	34	25.2	25.2	25.9
3.00	81	60.0	60.0	85.9
4.00	19	14.1	14.1	100.0
Total	135	100.0	100.0	

D1

	Frequency	Percent	Valid Percent	Cumulative Percent
2.00	4	3.0	3.0	3.0
3.00	93	68.9	68.9	71.9
4.00	38	28.1	28.1	100.0
Total	135	100.0	100.0	

D2

	Frequency	Percent	Valid Percent	Cumulative Percent
1.00	1	.7	.7	.7
2.00	59	43.7	43.7	44.4
3.00	70	51.9	51.9	96.3
4.00	5	3.7	3.7	100.0
Total	135	100.0	100.0	

D3

	Frequency	Percent	Valid Percent	Cumulative Percent
1.00	2	1.5	1.5	1.5
2.00	35	25.9	26.3	27.8
3.00	88	65.2	66.2	94.0
4.00	8	5.9	6.0	100.0
Total	133	98.5	100.0	
ng System	2	1.5		
	135	100.0		

D4

	Frequency	Percent	Valid Percent	Cumulative Percent
1.00	3	2.2	2.2	2.2
2.00	75	55.6	56.0	58.2
3.00	51	37.8	38.1	96.3
4.00	5	3.7	3.7	100.0
Total	134	99.3	100.0	
ng System	1	.7		
	135	100.0		

D5

	Frequency	Percent	Valid Percent	Cumulative Percent
2.00	5	3.7	3.7	3.7
3.00	76	56.3	56.3	60.0
4.00	54	40.0	40.0	100.0
Total	135	100.0	100.0	

D6

	Frequency	Percent	Valid Percent	Cumulative Percent
2.00	8	5.9	6.0	6.0
3.00	49	36.3	36.8	42.9
4.00	76	56.3	57.1	100.0
Total	133	98.5	100.0	
System	2	1.5		
	135	100.0		

D7

	Frequency	Percent	Valid Percent	Cumulative Percent
2.00	11	8.1	8.1	8.1
3.00	68	50.4	50.4	58.5
4.00	56	41.5	41.5	100.0
Total	135	100.0	100.0	

D8

	Frequency	Percent	Valid Percent	Cumulative Percent
1.00	2	1.5	1.5	1.5
2.00	82	60.7	61.2	62.7
3.00	41	30.4	30.6	93.3
4.00	9	6.7	6.7	100.0
Total	134	99.3	100.0	
System	1	.7		
	135	100.0		

D9

	Frequency	Percent	Valid Percent	Cumulative Percent
1.00	1	.7	.7	.7
2.00	83	61.5	61.5	62.2
3.00	46	34.1	34.1	96.3
4.00	5	3.7	3.7	100.0
Total	135	100.0	100.0	

D10

	Frequency	Percent	Valid Percent	Cumulative Percent
1.00	1	.7	.7	.7
2.00	54	40.0	40.0	40.7
3.00	71	52.6	52.6	93.3
4.00	9	6.7	6.7	100.0
Total	135	100.0	100.0	

D11

	Frequency	Percent	Valid Percent	Cumulative Percent
1.00	1	.7	.7	.7
2.00	29	21.5	21.5	22.2
3.00	91	67.4	67.4	89.6
4.00	14	10.4	10.4	100.0
Total	135	100.0	100.0	

D12

	Frequency	Percent	Valid Percent	Cumulative Percent
2.00	44	32.6	32.8	32.8
3.00	72	53.3	53.7	86.6
4.00	18	13.3	13.4	100.0
Total	134	99.3	100.0	
System	1	.7		
	135	100.0		

D13

	Frequency	Percent	Valid Percent	Cumulative Percent
2.00	8	5.9	5.9	5.9
3.00	86	63.7	63.7	69.6
4.00	41	30.4	30.4	100.0
Total	135	100.0	100.0	

D14

	Frequency	Percent	Valid Percent	Cumulative Percent
2.00	29	21.5	21.5	21.5
3.00	81	60.0	60.0	81.5
4.00	25	18.5	18.5	100.0
Total	135	100.0	100.0	

D15

	Frequency	Percent	Valid Percent	Cumulative Percent
1.00	1	.7	.7	.7
2.00	15	11.1	11.1	11.9
3.00	86	63.7	63.7	75.6
4.00	33	24.4	24.4	100.0
Total	135	100.0	100.0	

D16

	Frequency	Percent	Valid Percent	Cumulative Percent
2.00	9	6.7	6.7	6.7
3.00	79	58.5	58.5	65.2
4.00	47	34.8	34.8	100.0
Total	135	100.0	100.0	

D17

	Frequency	Percent	Valid Percent	Cumulative Percent
2.00	4	3.0	3.0	3.0
3.00	61	45.2	45.2	48.1
4.00	70	51.9	51.9	100.0
Total	135	100.0	100.0	

D18

	Frequency	Percent	Valid Percent	Cumulative Percent
2.00	7	5.2	5.2	5.2
3.00	79	58.5	58.5	63.7
4.00	49	36.3	36.3	100.0
Total	135	100.0	100.0	

D19

	Frequency	Percent	Valid Percent	Cumulative Percent
2.00	6	4.4	4.4	4.4
3.00	80	59.3	59.3	63.7
4.00	49	36.3	36.3	100.0
Total	135	100.0	100.0	

D20

	Frequency	Percent	Valid Percent	Cumulative Percent
2.00	2	1.5	1.5	1.5
3.00	74	54.8	54.8	56.3
4.00	59	43.7	43.7	100.0
Total	135	100.0	100.0	

D21

	Frequency	Percent	Valid Percent	Cumulative Percent
2.00	2	1.5	1.5	1.5
3.00	62	45.9	45.9	47.4
4.00	71	52.6	52.6	100.0
Total	135	100.0	100.0	

D22

	Frequency	Percent	Valid Percent	Cumulative Percent
2.00	2	1.5	1.5	1.5
3.00	62	45.9	45.9	47.4
4.00	71	52.6	52.6	100.0
Total	135	100.0	100.0	

D23

	Frequency	Percent	Valid Percent	Cumulative Percent
2.00	7	5.2	5.2	5.2
3.00	68	50.4	50.7	56.0
4.00	59	43.7	44.0	100.0
Total	134	99.3	100.0	
ing System	1	.7		
Total	135	100.0		

D24

	Frequency	Percent	Valid Percent	Cumulative Percent
2.00	5	3.7	3.7	3.7
3.00	36	26.7	26.7	30.4
4.00	94	69.6	69.6	100.0
Total	135	100.0	100.0	

D25

	Frequency	Percent	Valid Percent	Cumulative Percent
1.00	1	.7	.7	.7
2.00	4	3.0	3.0	3.7
3.00	30	22.2	22.2	25.9
4.00	100	74.1	74.1	100.0
Total	135	100.0	100.0	

D26

	Frequency	Percent	Valid Percent	Cumulative Percent
2.00	3	2.2	2.2	2.2
3.00	46	34.1	34.1	36.3
4.00	86	63.7	63.7	100.0
Total	135	100.0	100.0	

D27

	Frequency	Percent	Valid Percent	Cumulative Percent
1.00	2	1.5	1.5	1.5
2.00	15	11.1	11.1	12.6
3.00	83	61.5	61.5	74.1
4.00	35	25.9	25.9	100.0
Total	135	100.0	100.0	

D28

	Frequency	Percent	Valid Percent	Cumulative Percent
1.00	1	.7	.7	.7
2.00	14	10.4	10.4	11.1
3.00	82	60.7	60.7	71.9
4.00	38	28.1	28.1	100.0
Total	135	100.0	100.0	

D29

	Frequency	Percent	Valid Percent	Cumulative Percent
1.00	7	5.2	5.2	5.2
2.00	49	36.3	36.3	41.5
3.00	66	48.9	48.9	90.4
4.00	13	9.6	9.6	100.0
Total	135	100.0	100.0	

D30

	Frequency	Percent	Valid Percent	Cumulative Percent
1.00	1	.7	.7	.7
2.00	10	7.4	7.4	8.1
3.00	59	43.7	43.7	51.9
4.00	65	48.1	48.1	100.0
Total	135	100.0	100.0	

Appendix D:

Statistical data of the questionnaire survey (Independent Sample T Test)

T-Tes

Group Statistics

	A1_GENDE	N	Mean	Std. Deviation	Std. Error Mean
D25	female	106	3.6415	.6046	5.872E-02
	male	29	3.8966	.3099	5.755E-02

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	99% Confidence Interval of the Difference	
									Lower	Upper
D25	Equal variances assumed	22.244	.000	-2.190	133	.030	-.2550	.1164	-.5594	4.927E-02
	Equal variances not assumed			-3.102	90.488	.003	-.2550	8.222E-02	-.4714	-3.87E-02

T-Tes

Group Statistics

	A2_QUAL	N	Mean	Std. Deviation	Std. Error Mean
B1	Teacher's Cert.	89	2.9551	.4500	4.770E-02
	BEd or above	46	3.2174	.4673	6.890E-02
B4	Teacher's Cert.	89	3.1685	.5053	5.357E-02
	BEd or above	45	3.5111	.5055	7.536E-02
D26	Teacher's Cert.	89	3.5281	.5454	5.782E-02
	BEd or above	46	3.7826	.4673	6.890E-02
D28	Teacher's Cert.	89	3.0449	.6380	6.763E-02
	BEd or above	46	3.3913	.5366	7.912E-02

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	99% Confidence Interval of the Difference	
									Lower	Upper
B1	Equal variances assumed	5.950	.016	-3.169	133	.002	-.2623	8.279E-02	-.4787	-4.60E-02
	Equal variances not assumed			-3.131	88.125	.002	-.2623	8.380E-02	-.4830	-4.17E-02
B4	Equal variances assumed	6.239	.014	-3.706	132	.000	-.3426	9.245E-02	-.5842	-.1010
	Equal variances not assumed			-3.705	88.409	.000	-.3426	9.246E-02	-.5860	-9.92E-02
D26	Equal variances assumed	18.342	.000	-2.694	133	.008	-.2545	9.448E-02	-.5014	-7.61E-03
	Equal variances not assumed			-2.830	104.254	.006	-.2545	8.994E-02	-.4905	-1.85E-02
D28	Equal variances assumed	1.631	.204	-3.150	133	.002	-.3464	.1100	-.6337	-5.90E-02
	Equal variances not assumed			-3.328	105.881	.001	-.3464	.1041	-.6194	-7.34E-02

T-Tes

Group Statistics

		N	Mean	Std. Deviation	Std. Error Mean
D8	upper primary	89	2.3146	.5954	6.311E-02
	lower primary	45	2.6444	.6794	.1013

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	99% Confidence Interval of the Difference	
									Lower	Upper
D8	Equal variances assumed	3.525	.063	-2.887	132	.005	-.3298	.1143	-.6285	-3.12E-02
	Equal variances not assumed			-2.764	78.853	.007	-.3298	.1193	-.6448	-1.48E-02

T-Tes

Group Statistics

	A5.1 CHI	N	Mean	Std. Deviation	Std. Error Mean
D14	no	51	2.7451	.6275	8.786E-02
	yes	84	3.1071	.6016	6.564E-02

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	99% Confidence Interval of the Difference	
									Lower	Upper
D14	Equal variances assumed	2.098	.150	-3.336	133	.001	-.3620	.1085	-.6457	-7.84E-02
	Equal variances not assumed			-3.301	102.201	.001	-.3620	.1097	-.6499	-7.42E-02

T-Tes

Group Statistics

	A5_5_ENG	N	Mean	Std. Deviation	Std. Error Mean
C4	no	78	2.4615	.5964	6.752E-02
	yes	54	2.1667	.3762	5.119E-02
C8	no	81	2.8519	.4503	5.003E-02
	yes	54	2.6111	.4921	6.696E-02

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	99% Confidence Interval of the Difference	
									Lower	Upper
C4	Equal variances assumed	38.780	.000	3.215	130	.002	.2949	9.170E-02	5.514E-02	.5346
	Equal variances not assumed			3.480	129.025	.001	.2949	8.474E-02	7.333E-02	.5164
C8	Equal variances assumed	12.515	.001	2.932	133	.004	.2407	8.211E-02	2.615E-02	.4553
	Equal variances not assumed			2.880	106.672	.005	.2407	8.359E-02	2.151E-02	.4600

T-Tes

Group Statistics

	A5_9_OTH	N	Mean	Std. Deviation	Std. Error Mean
B7	no	118	2.4153	.5283	4.863E-02
	yes	17	2.0000	.7071	.1715

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means				
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference
B7	Equal variances assumed	.286	.594	2.895	133	.004	.4153	
	Equal variances not assumed			2.329	18.660	.031	.4153	

T-Tes

Group Statistics

	A6 3 THE	N	Mean	Std. Deviation	Std. Error Mean
C11	no	99	2.9596	.6376	6.408E-02
	yes	36	3.2778	.5133	8.555E-02
D10	no	99	2.7475	.5775	5.804E-02
	yes	36	2.3889	.6449	.1075

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means				
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference
C11	Equal variances assumed	.154	.696	-2.692	133	.008	-.3182	
	Equal variances not assumed			-2.977	76.669	.004	-.3182	
D10	Equal variances assumed	1.282	.260	3.091	133	.002	.3586	
	Equal variances not assumed			2.936	56.671	.005	.3586	

Group Statistics

A7 SESS		N	Mean	Std. Deviation	Std. Error Mean
B5	bi-sectional	92	2.7717	.6810	7.100E-02
	whole-day	43	2.4419	.6288	9.589E-02

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	99% Confidence Interval of the Difference	
									Lower	Upper
B5	Equal variances assumed	.040	.842	2.685	133	.008	.3299	.1228	8.859E-03	.6509
	Equal variances not assumed			2.765	88.418	.007	.3299	.1193	1.578E-02	.6440

T-Tes

Group Statistics

A9 REGIO		N	Mean	Std. Deviation	Std. Error Mean
B10	HK Island	74	2.5135	.5792	6.733E-02
	New Territories	61	2.7869	.6355	8.136E-02
D21	HK Island	74	3.4054	.5213	6.060E-02
	New Territories	61	3.6393	.5175	6.625E-02

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	99% Confidence Interval of the Difference	
									Lower	Upper
B10	Equal variances assumed	.247	.620	-2.612	133	.010	-.2734	.1047	-.5469	1.460E-04
	Equal variances not assumed			-2.589	122.927	.011	-.2734	.1056	-.5497	2.941E-03
D21	Equal variances assumed	.725	.396	-2.604	133	.010	-.2339	8.985E-02	-.4687	8.716E-04
	Equal variances not assumed			-2.605	128.478	.010	-.2339	8.979E-02	-.4687	8.232E-04

Appendix E:

Statistical data of the questionnaire survey

(One-way ANOVA and Post Hoc Test)

Onewa

Descriptives

C9

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
0-5 yrs	8	2.5000	.5345	.1890	2.0531	2.9469	2.00	3.00
6-10 yrs	62	3.0968	.5028	6.385E-02	2.9691	3.2245	2.00	4.00
11-15 yrs	23	3.0000	.4264	8.891E-02	2.8156	3.1844	2.00	4.00
16-20 yrs	15	3.1333	.5164	.1333	2.8474	3.4193	2.00	4.00
21-30 yrs	26	3.2308	.4297	8.427E-02	3.0572	3.4043	3.00	4.00
Total	134	3.0746	.5000	4.320E-02	2.9892	3.1601	2.00	4.00

ANOVA

C9

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	3.486	4	.871	3.776	.006
Within Groups	29.768	129	.231		
Total	33.254	133			

Post Hoc Test

Multiple Comparisons

Dependent Variable: C9
Bonferroni

(I) A3 EXP	(J) A3 EXP	Mean Difference (I-J)	Std. Error	Sig.	99% Confidence Interval	
					Lower Bound	Upper Bound
0-5 yrs	6-10 yrs	-.5968	.1805	.012	-1.2045	1.094E-02
	11-15 yrs	-.5000	.1972	.124	-1.1640	.1640
	16-20 yrs	-.6333	.2103	.031	-1.3416	7.489E-02
	21-30 yrs	-.7308*	.1942	.003	-1.3848	-7.6733E-02
6-10 yrs	0-5 yrs	.5968	.1805	.012	-1.0944E-02	1.2045
	11-15 yrs	9.677E-02	.1173	1.000	-.2982	.4917
	16-20 yrs	-3.6559E-02	.1382	1.000	-.5020	.4289
	21-30 yrs	-.1340	.1122	1.000	-.5120	.2440
11-15 yrs	0-5 yrs	.5000	.1972	.124	-.1640	1.1640
	6-10 yrs	-9.6774E-02	.1173	1.000	-.4917	.2982
	16-20 yrs	-.1333	.1594	1.000	-.6702	.4035
	21-30 yrs	-.2308	.1375	.957	-.6938	.2323
16-20 yrs	0-5 yrs	.6333	.2103	.031	-7.4885E-02	1.3416
	6-10 yrs	3.656E-02	.1382	1.000	-.4289	.5020
	11-15 yrs	.1333	.1594	1.000	-.4035	.6702
	21-30 yrs	-9.7436E-02	.1558	1.000	-.6219	.4271
21-30 yrs	0-5 yrs	.7308*	.1942	.003	7.673E-02	1.3848
	6-10 yrs	.1340	.1122	1.000	-.2440	.5120
	11-15 yrs	.2308	.1375	.957	-.2323	.6938
	16-20 yrs	9.744E-02	.1558	1.000	-.4271	.6219

*. The mean difference is significant at the .01 level.

Appendix F:

Statistical data of the questionnaire survey

(Crosstabs Symmetric Measures

and Partial Correlations)

Crosstab

D1 * D2 * A1_GEND

Symmetric Measures

A1_GEND			Value	Asymp. Std. Error ^a	Approx. T ^b	Approx. Sig.
female	Interval by Interval	Pearson's R	.174	.097	1.805	.074 ^c
	Ordinal by Ordinal	Spearman Correlation	.163	.096	1.682	.096 ^c
	N of Valid Cases		106			
male	Interval by Interval	Pearson's R	.525	.084	3.207	.003 ^c
	Ordinal by Ordinal	Spearman Correlation	.545	.084	3.380	.002 ^c
	N of Valid Cases		29			

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Based on normal approximation.

D1 * D2 * A5_3_AR

Symmetric Measures

A5_3_ART			Value	Asymp. Std. Error ^a	Approx. T ^b	Approx. Sig.
no	Interval by Interval	Pearson's R	.186	.099	1.869	.065 ^c
	Ordinal by Ordinal	Spearman Correlation	.155	.101	1.549	.125 ^c
	N of Valid Cases		99			
yes	Interval by Interval	Pearson's R	.489	.113	3.270	.002 ^c
	Ordinal by Ordinal	Spearman Correlation	.510	.103	3.457	.001 ^c
	N of Valid Cases		36			

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Based on normal approximation.

D1 * D3 * A1_GEND

Symmetric Measures

A1 GENDE			Value	Asymp. Std. Error ^a	Approx. T ^b	Approx. Sig.
female	Interval by Interval	Pearson's R	.388	.088	4.250	.000 ^c
	Ordinal by Ordinal	Spearman Correlation	.355	.083	3.836	.000 ^c
	N of Valid Cases		104			
male	Interval by Interval	Pearson's R	.508	.088	3.068	.005 ^c
	Ordinal by Ordinal	Spearman Correlation	.530	.088	3.249	.003 ^c
	N of Valid Cases		29			

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Based on normal approximation.

D2 * D3 * A1_GEND

Symmetric Measures

A1 GENDE			Value	Asymp. Std. Error ^a	Approx. T ^b	Approx. Sig.
female	Interval by Interval	Pearson's R	.381	.088	4.163	.000 ^c
	Ordinal by Ordinal	Spearman Correlation	.342	.089	3.678	.000 ^c
	N of Valid Cases		104			
male	Interval by Interval	Pearson's R	.685	.147	4.880	.000 ^c
	Ordinal by Ordinal	Spearman Correlation	.577	.170	3.669	.001 ^c
	N of Valid Cases		29			

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Based on normal approximation.

D2 * D3 * A5_1_CH

Symmetric Measures

A5_1_CH1			Value	Asymp. Std. Error ^a	Approx. T ^b	Approx. Sig.
no	Interval by Interval	Pearson's R	.656	.095	6.021	.000 ^c
	Ordinal by Ordinal	Spearman Correlation	.605	.093	5.260	.000 ^c
	N of Valid Cases		50			
yes	Interval by Interval	Pearson's R	.339	.110	3.246	.002 ^c
	Ordinal by Ordinal	Spearman Correlation	.268	.111	2.500	.014 ^c
	N of Valid Cases		83			

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Based on normal approximation.

D2 * D3 * A5_2_MA

Symmetric Measures

A5_2_MA7			Value	Asymp. Std. Error ^a	Approx. T ^b	Approx. Sig.
no	Interval by Interval	Pearson's R	.549	.097	4.739	.000 ^c
	Ordinal by Ordinal	Spearman Correlation	.537	.103	4.591	.000 ^c
	N of Valid Cases		54			
yes	Interval by Interval	Pearson's R	.397	.122	3.800	.000 ^c
	Ordinal by Ordinal	Spearman Correlation	.294	.117	2.699	.009 ^c
	N of Valid Cases		79			

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Based on normal approximation.

D2 * D3 * A5_4_MU

Symmetric Measures

A5 4 MUS			Value	Asymp. Std. Error ^a	Approx. T ^b	Approx. Sig.
no	Interval by Interval	Pearson's R	.441	.095	5.035	.000 ^c
	Ordinal by Ordinal	Spearman Correlation	.357	.095	3.916	.000 ^c
	N of Valid Cases		107			
yes	Interval by Interval	Pearson's R	.577	.086	3.464	.002 ^c
	Ordinal by Ordinal	Spearman Correlation	.582	.091	3.509	.002 ^c
	N of Valid Cases		26			

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Based on normal approximation.

D2 * D3 * A6_1_MO

Symmetric Measures

A6 1 MOD			Value	Asymp. Std. Error ^a	Approx. T ^b	Approx. Sig.
no	Interval by Interval	Pearson's R	.034	.150	.222	.826 ^c
	Ordinal by Ordinal	Spearman Correlation	.034	.150	.222	.826 ^c
	N of Valid Cases		44			
yes	Interval by Interval	Pearson's R	.570	.083	6.472	.000 ^c
	Ordinal by Ordinal	Spearman Correlation	.515	.086	5.611	.000 ^c
	N of Valid Cases		89			

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Based on normal approximation.

D2 * D3 * A6_2_CR

Symmetric Measures

A6 2 CRO			Value	Asymp. Std. Error ^a	Approx. T ^b	Approx. Sig.
no	Interval by Interval	Pearson's R	.560	.092	5.854	.000 ^c
	Ordinal by Ordinal	Spearman Correlation	.500	.095	5.003	.000 ^c
	N of Valid Cases		77			
yes	Interval by Interval	Pearson's R	.264	.145	2.009	.050 ^c
	Ordinal by Ordinal	Spearman Correlation	.209	.135	1.567	.123 ^c
	N of Valid Cases		56			

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Based on normal approximation.

D3 * D4 * A5_9_OT

Symmetric Measures

A5 9 OTH			Value	Asymp. Std. Error ^a	Approx. T ^b	Approx. Sig.
no	Interval by Interval	Pearson's R	.157	.120	1.695	.093 ^c
	Ordinal by Ordinal	Spearman Correlation	.060	.106	.638	.525 ^c
	N of Valid Cases		116			
yes	Interval by Interval	Pearson's R	-.627	.098	-3.115	.007 ^c
	Ordinal by Ordinal	Spearman Correlation	-.625	.102	-3.099	.007 ^c
	N of Valid Cases		17			

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Based on normal approximation.

D3 * D6 * A3_EX

Symmetric Measures

A3 EXP			Value	Asymp. Std. Error ^a	Approx. T ^b	Approx. Sig.
0-5 yrs	Interval by Interval	Pearson's R	-.194	.174	-.441	.677 ^c
	Ordinal by Ordinal	Spearman Correlation	-.214	.213	-.490	.645 ^c
	N of Valid Cases		7			
6-10 yrs	Interval by Interval	Pearson's R	-.284	.108	-2.292	.025 ^c
	Ordinal by Ordinal	Spearman Correlation	-.257	.115	-2.057	.044 ^c
	N of Valid Cases		62			
11-15 yrs	Interval by Interval	Pearson's R	-.409	.143	-2.054	.053 ^c
	Ordinal by Ordinal	Spearman Correlation	-.423	.158	-2.140	.044 ^c
	N of Valid Cases		23			
16-20 yrs	Interval by Interval	Pearson's R	-.217	.171	-.800	.438 ^c
	Ordinal by Ordinal	Spearman Correlation	-.270	.194	-1.011	.330 ^c
	N of Valid Cases		15			
21-30 yrs	Interval by Interval	Pearson's R	-.641	.122	-4.006	.001 ^c
	Ordinal by Ordinal	Spearman Correlation	-.597	.117	-3.568	.002 ^c
	N of Valid Cases		25			

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Based on normal approximation.

D5 * D6 * A1_GEND

Symmetric Measures

A1_GENDE			Value	Asymp. Std. Error ^a	Approx. T ^b	Approx. Sig.
female	Interval by Interval	Pearson's R	.450	.084	5.120	.000 ^c
	Ordinal by Ordinal	Spearman Correlation	.435	.083	4.904	.000 ^c
	N of Valid Cases		105			
male	Interval by Interval	Pearson's R	.587	.136	3.697	.001 ^c
	Ordinal by Ordinal	Spearman Correlation	.550	.136	3.355	.002 ^c
	N of Valid Cases		28			

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Based on normal approximation.

Symmetric Measures

A3 EXP			Value	Asymp. Std. Error ^a	Approx. T ^b	Approx. Sig.
0-5 yrs	Interval by Interval	Pearson's R	-.354	.191	-.845	.437 ^c
	Ordinal by Ordinal	Spearman Correlation	-.354	.191	-.845	.437 ^c
	N of Valid Cases		7			
6-10 yrs	Interval by Interval	Pearson's R	.597	.089	5.805	.000 ^c
	Ordinal by Ordinal	Spearman Correlation	.568	.088	5.388	.000 ^c
	N of Valid Cases		63			
11-15 yrs	Interval by Interval	Pearson's R	.520	.151	2.792	.011 ^c
	Ordinal by Ordinal	Spearman Correlation	.493	.161	2.597	.017 ^c
	N of Valid Cases		23			
16-20 yrs	Interval by Interval	Pearson's R	.299	.195	1.129	.279 ^c
	Ordinal by Ordinal	Spearman Correlation	.280	.227	1.050	.313 ^c
	N of Valid Cases		15			
21-30 yrs	Interval by Interval	Pearson's R	.322	.198	1.630	.117 ^c
	Ordinal by Ordinal	Spearman Correlation	.376	.195	1.948	.064 ^c
	N of Valid Cases		25			

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Based on normal approximation.

D5 * D6 * A5_2_MA

Symmetric Measures

A5_2_MAT			Value	Asymp. Std. Error ^a	Approx. T ^b	Approx. Sig.
no	Interval by Interval	Pearson's R	.457	.128	3.705	.001 ^c
	Ordinal by Ordinal	Spearman Correlation	.384	.125	2.996	.004 ^c
	N of Valid Cases		54			
yes	Interval by Interval	Pearson's R	.495	.088	4.996	.000 ^c
	Ordinal by Ordinal	Spearman Correlation	.510	.087	5.202	.000 ^c
	N of Valid Cases		79			

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Based on normal approximation.

Symmetric Measures

A5_3_ART			Value	Asymp. Std. Error ^a	Approx. T ^b	Approx. Sig.
no	Interval by Interval	Pearson's R	.408	.094	4.378	.000 ^c
	Ordinal by Ordinal	Spearman Correlation	.380	.090	4.020	.000 ^c
	N of Valid Cases		98			
yes	Interval by Interval	Pearson's R	.648	.095	4.893	.000 ^c
	Ordinal by Ordinal	Spearman Correlation	.660	.101	5.051	.000 ^c
	N of Valid Cases		35			

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Based on normal approximation.

D5 * D6 * A5_9_OT

Symmetric Measures

A5_9_OTH			Value	Asymp. Std. Error ^a	Approx. T ^b	Approx. Sig.
no	Interval by Interval	Pearson's R	.528	.072	6.641	.000 ^c
	Ordinal by Ordinal	Spearman Correlation	.517	.070	6.447	.000 ^c
	N of Valid Cases		116			
yes	Interval by Interval	Pearson's R	.056	.242	.215	.832 ^c
	Ordinal by Ordinal	Spearman Correlation	.056	.242	.215	.832 ^c
	N of Valid Cases		17			

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Based on normal approximation.

D5 * D6 * A6_3_TH

Symmetric Measures

A6_3_THE			Value	Asymp. Std. Error ^a	Approx. T ^b	Approx. Sig.
no	Interval by Interval	Pearson's R	.444	.091	4.827	.000 ^c
	Ordinal by Ordinal	Spearman Correlation	.421	.088	4.526	.000 ^c
	N of Valid Cases		97			
yes	Interval by Interval	Pearson's R	.580	.109	4.147	.000 ^c
	Ordinal by Ordinal	Spearman Correlation	.566	.110	4.005	.000 ^c
	N of Valid Cases		36			

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Based on normal approximation.

D5 * D6 * A7_SES

Symmetric Measures

A7_SESS			Value	Asymp. Std. Error ^a	Approx. T ^b	Approx. Sig.
bi-sectional	Interval by Interval	Pearson's R	.480	.086	5.169	.000 ^c
	Ordinal by Ordinal	Spearman Correlation	.444	.085	4.677	.000 ^c
	N of Valid Cases		91			
whole-day	Interval by Interval	Pearson's R	.508	.139	3.726	.001 ^c
	Ordinal by Ordinal	Spearman Correlation	.523	.131	3.882	.000 ^c
	N of Valid Cases		42			

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Based on normal approximation.

D5 * D6 * A9_REGI

Symmetric Measures

A9 REGIO			Value	Asymp. Std. Error ^a	Approx. T ^b	Approx. Sig.
HK Island	Interval by Interval	Pearson's R	.464	.100	4.419	.000 ^c
	Ordinal by Ordinal	Spearman Correlation	.417	.101	3.866	.000 ^c
	N of Valid Cases		73			
New Territories	Interval by Interval	Pearson's R	.500	.106	4.395	.000 ^c
	Ordinal by Ordinal	Spearman Correlation	.509	.103	4.503	.000 ^c
	N of Valid Cases		60			

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Based on normal approximation.

Appendix G:

Statistical data of the questionnaire survey

(Reliability Analysis)

Reliabilit

***** Method 1 (space saver) will be used for this analysis *****

RELIABILITY ANALYSIS - SCALE (ALPHA)

		Mean	Std Dev	Cases
1.	B1	3.0451	.4746	133.0
2.	B2	3.1278	.5424	133.0
3.	B3	3.2707	.5658	133.0
4.	B4	3.2857	.5305	133.0
5.	B5	2.6692	.6823	133.0
6.	B6	2.8571	.6294	133.0

Reliability Coefficients

N of Cases = 133.0 N of Items = 6

Alpha = .7798

Reliabilit

***** Method 1 (space saver) will be used for this analysis *****

RELIABILITY ANALYSIS - SCALE (ALPHA)

		Mean	Std Dev	Cases
1.	B7	2.3657	.5691	134.0
2.	B8	2.9925	.6430	134.0
3.	B9	3.1343	.5172	134.0
4.	B10	2.6418	.6181	134.0
5.	B11	3.0448	.5864	134.0
6.	B12	3.1418	.5901	134.0
7.	B13	2.8881	.6212	134.0
8.	B14	2.8507	.6432	134.0

Reliability Coefficients

N of Cases = 134.0 N of Items = 8

Alpha = .8753

Reliability

***** Method 1 (space saver) will be used for this analysis *****

RELIABILITY ANALYSIS - SCALE (ALPHA)

		Mean	Std Dev	Cases
1.	C1	3.1769	.5052	130.0
2.	C2	3.1538	.5350	130.0
3.	C3	3.2154	.5280	130.0
4.	C4	2.3462	.5386	130.0
5.	C5	3.0154	.4820	130.0
6.	C6	3.1000	.6331	130.0
7.	C7	3.0538	.5029	130.0

Reliability Coefficients

N of Cases = 130.0

N of Items = 7

Alpha = .7525

Reliabilit

***** Method 1 (space saver) will be used for this analysis *****

RELIABILITY ANALYSIS - SCALE (ALPHA)

		Mean	Std Dev	Cases
1.	C8	2.7537	.4818	134.0
2.	C9	3.0746	.5000	134.0
3.	C10	3.0149	.5482	134.0
4.	C11	3.0373	.6181	134.0
5.	C12	2.8657	.6347	134.0

Reliability Coefficients

N of Cases = 134.0

N of Items = 5

Alpha = .6851

Reliabilit

***** Method 1 (space saver) will be used for this analysis *****

RELIABILITY ANALYSIS - SCALE (ALPHA)

		Mean	Std Dev	Cases
1.	D1	3.2652	.4921	132.0
2.	D2	2.5758	.5679	132.0
3.	D3	2.7727	.5741	132.0
4.	D4	2.4318	.6078	132.0
5.	D5	3.3636	.5563	132.0
6.	D6	3.5076	.6115	132.0

Reliability Coefficients

N of Cases = 132.0

N of Items = 6

Alpha = .3207

Reliabilit

***** Method 1 (space saver) will be used for this analysis *****

RELIABILITY ANALYSIS - SCALE (ALPHA)

		Mean	Std Dev	Cases
1.	D7	3.3308	.6243	133.0
2.	D8	2.4286	.6430	133.0
3.	D9	2.4135	.5790	133.0
4.	D10	2.6541	.6160	133.0
5.	D11	2.8722	.5828	133.0
6.	D12	2.8045	.6567	133.0
7.	D13	3.2481	.5560	133.0
8.	D14	2.9699	.6389	133.0
9.	D15	3.1278	.6082	133.0

Reliability Coefficients

N of Cases = 133.0

N of Items = 9

Alpha = .7756

Reliabilit

***** Method 1 (space saver) will be used for this analysis *****

RELIABILITY ANALYSIS - SCALE (ALPHA)

		Mean	Std Dev	Cases
1.	D16	3.2836	.5831	134.0
2.	D17	3.4925	.5585	134.0
3.	D18	3.3134	.5675	134.0
4.	D19	3.3209	.5566	134.0
5.	D20	3.4254	.5257	134.0
6.	D21	3.5149	.5308	134.0
7.	D22	3.5149	.5308	134.0
8.	D23	3.3881	.5870	134.0
9.	D24	3.6642	.5476	134.0
10.	D25	3.6940	.5650	134.0
11.	D26	3.6119	.5333	134.0

Reliability Coefficients

N of Cases = 134.0

N of Items = 11

Alpha = .9082

Reliabilit

***** Method 1 (space saver) will be used for this analysis *****

RELIABILITY ANALYSIS - SCALE (ALPHA)

		Mean	Std Dev	Cases
1.	D27	3.1185	.6471	135.0
2.	D28	3.1630	.6254	135.0
3.	D29	2.6296	.7304	135.0
4.	D30	3.3926	.6590	135.0

Reliability Coefficients

N of Cases = 135.0

N of Items = 4

Alpha = .6025