An Investigation into Teachers' Questions
and Tasks to Develop Reading
Comprehension
The Application of the Cogaff Taxonomy in Developing Critical
Thinking in Malaysia

Thesis submitted for the degree of

Doctor of Philosophy

at the University of Leicester

by   ·

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October 1997

UMI Number: U105382

UMI

Dissertation Publishing

ProQuest

ACKNOWLEDGEMENTS

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Glossary

CDC	Curriculum Development Centre (Ministry of Education, Malaysia)
HOQs	Higher-order Questions
HOTs	Higher-order tasks
KBSM	*Kurikulum Baru Sekolah Menengah* (New Integrated Syllabus for the Secondary Schools)
KBSR	*Kurikulum Baru Sekolah Rendah* (New Integrated Syllabus for the Primary Schools
LOTPs	Levels of thought processes
LOQs	Lower-order questions
LOTs	Lower-order tasks
PMA	*Penilaian Menengah Atas* (Upper Secondary Examinations)
PMR	*Penilaian Menengah Rendah* (Lower Secondary Examinations)
RCQs	Reading comprehension questions
RCTs	Reading comprehension tasks
SMDAS	Sekolah Menengah Dato' Abdul Samad
TKS	Tuanku Kurshiah School
TMS	Tuanku Muhammad School
UPM	Universiti Putra Malaysia

Abstract

An Investigation into Teachers' Questions and Tasks to Develop Reading
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*The Application of the Cogaff Taxonomy in Developing
Critical Thinking in Malaysia*
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Malaysian teachers are constantly seeking ways to improve their students' reading in English and thereby enhance the learning of their students. One method of doing this is to bring critical and creative thinking to the forefront of the curriculum. This has been emphasized by the Malaysian Ministry of Education via the KBSM syllabus in order to teach these skills by considering the use of programmes like Bloom's Taxonomy of Educational Objectives in classroom practice. This study demonstrates how the higher-order skills can be integrated into the secondary school reading curriculum. The main aim of the study is to investigate how teachers design Reading Comprehension Questions (RCQs) and Tasks (RCTs) in relation to the demands of higher-order thinking to produce students with critical minds. It focuses primarily on the use of the Cogaff Taxonomy (a cognitive-affective taxonomy, adapted from Bloom's and Krathwohl's) to formulate higher-order RCQs and RCTs as a means to develop critical and creative thinking. In a pilot study in Britain (with 40 Malaysian teachers) and in the main field study in Malaysia, 150 subjects (teachers and student teachers) yielded about 1000 RCQs and 1000 RCTs. In line with many research findings of question and task design, 91.2%f the RCQs and 83.6% of the RCTs produced during the pretest were of low-order (literal) types. Subjects attended a workshop emphasizing question and task designing with the Cogaff Taxonomy. Dramatically, during the posttest in the main study, 74.4% of the RCQs and 80.6% of the RCTs were transformed into higher-order inferential forms. These results demonstrate that the teachers can potentially change the cognitive (and affective) demands of the comprehension questions and tasks they design. In a smaller subsidiary study, units from two English textbooks used in Malaysia are analysed to determine the levels of their RCTs and RCQs. The textbooks use a much broader range than the teachers did in the pretest. Implications for the teaching of Reading Comprehension and training of teachers in Malaysia are discussed.

CHAPTER ONE

Introduction, Rationale and Background

> *Reading is the means by which the world does a large part of its work. ... the slightest improvement either in the page or in the method of reading means a great service to the human race.* (Huey 1908)

1.0 Introduction

"Don't just urge children to think - teach them how to do it" was the message from Edith Cresson, European Commissioner for Education, Training and Youth, delivered during the conference on the teaching of constructive thinking skills in education in December 1996 in Dublin. The conference emphasized that the achievement of ever-wider access to an increasing range of formal education in Europe has been accompanied by a need to change the nature of education. It is no longer possible to think of mass education as the transmission of a generally agreed body of knowledge, underpinned by a largely unstated assumption that the acquisition of this knowledge will spontaneously lead to the acquisition of the necessary thinking skills. If such an assumption was ever justified, it can no longer be considered to be valid when the volume of knowledge available to mankind is growing exponentially, and when information and communications technology has led potentially to almost universal access to the sum of human knowledge (Cresson, 1996).

The only valid response to this new and constantly-changing landscape of human knowledge is to equip all citizens with the learning and thinking skills necessary to find their own pathway through it - to create a learning society of lifelong learners. This was the argument which led the European Union to designate 1996 as the European Year of Lifelong Learning. The 4,000 projects and 2,000 events of the Year reveal the European responsiveness to this idea (ibid.,1996). The Commission's White paper "Teaching and Learning - towards the

Learning Society" has been widely discussed at European and national levels, and is giving rise to a number of concrete initiatives (Op cit., 1996).

The critical need to pay more attention to higher-order thinking skills seems to be a major item on the agenda of the European Commission shown by their appointment of an independent group to come up with possible ways to develop such skills. Six years earlier, Cairney (1990), looking at higher-order thinking from the perspective of Reading Comprehension lessons, was concerned that our understanding of the reading process had increased in the last 20 years but few changes seemed to have occurred in the way comprehension is taught. A generation of teachers has had the opportunity to share in the results of research showing that reading is a constructive process driven by a search for meaning, and yet most still teach comprehension as if it were simply a process of information transfer. Passages are set and questions designed to interrogate them. Little concern is shown for the readers, and the knowledge they bring to the text is largely ignored. Comprehension is taught as a skill-based process that can be separated from the reading of real-world texts for functional purposes. Using constructive thinking skills in reading comprehension is undervalued. This apparently happens as a result of teachers' preferences for low-order or convergent questions over higher-order or divergent ones.

These two views share a similar concern: that if an education system fails to drive home input spiced with constructive thinking skills, this renders insufficient whatever benefits that education might otherwise deliver. Impelled by the same concern, from the perspective that Reading Comprehension instruction might be a means of instigating higher-order thinking processes in Malaysia, this study examines the nature and types of Malaysian teachers' Reading Comprehension Questions (RCQs) and Tasks (RCTs) and suggests how the lower levels of these two variables can be complemented by developing more higher-order, divergent kinds which can be used as effective instruments to teach critical thinking. This study aims at sharing with Malaysian teachers the strategies that the author believes are more consistent with Cresson's (1996) idea of education and Cairney's (1990)

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of comprehension lessons and with current knowledge of the reading process. It reemphasizes the role of the teacher in the reading comprehension lesson as an active promoter of thought-provoking lessons and creative thinking skills. One of the practical ways of implementing such an idea is to use the Cognitive-affective (Cogaff) taxonomy [adapted from Bloom et al. (1956), and Krathwohl et al. (1964)] to formulate reading comprehension questions and tasks which create opportunities for students to treat reading texts as a source of engagement in constructive thinking and a forum for creativity. Reading texts are treated as 'real-world texts for functional purposes' rather than just for information transfer (Cairney, 1990: 13).

For the purpose of constructing both RC questions and activities or tasks, the Cogaff taxonomy brings the two categories of thinking (cognitive) and valuing (affective) into practice. In the **cognitive** domains the categories include *knowledge*, or *recall, comprehension* (including *translation* or *interpretation*), *application, analysis, synthesis,* and *evaluation* (Bloom et al., 1956). The **affective** domain categories *include receiving, responding, valuing, organizing a value set,* and *characterizing by value complex* (Krathwohl et al., 1964) (details about the cognitive and affective domains are presented in Chapter Four)

Higher levels of thinking are required if pupils are to solve problems which demand reflective decision-making. To develop these skills requires giving students the opportunity to think for themselves by asking and responding to questions that go beyond recall of information presented to them. It is important that teachers encourage students to think creatively by guiding them in forming concepts and generalizations, developing the intellectual ability to analyze, synthesize and evaluate and apply values and responsibilities in their lives (Kissock and Iyortsuun, 1982).

Another effective way to teach thinking is to engage students in substantive tasks requiring the kinds of creativity that are required to develop critical thinking and then to teach explicitly, as the occasion arises, the specific cognitive operations

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they need to complete these tasks successfully. To accomplish this, Beyer (1992) suggests three things: first, teachers can make thinking the subject of instruction. In 'direct or explicit instruction' (Beyer 1992: 5). One good example of this kind of instruction is de Bono's CoRT thinking course (1996) currently being practised in some schools and tertiary institutions in Malaysia. Here, explicit techniques such as PMI (Plus, Minus, Interesting) are to be encouraged when making a balanced view; and to exercise APC (Alternatives, Possibilities, Choices) while making a choice between alternatives (de Bono, 1996). Secondly, Beyer (1992) suggests that instruction can focus on the key attributes of the cognitive operations that constitute thinking; and thirdly, teachers can provide continued explicit instruction and guided practice in how to execute these operations in different contexts for a variety of purposes. The second and third methods of teaching thinking seem to be congruent with the proposals of the present study. The use of the Cogaff Taxonomy allows teachers to use the attributes of both cognitive and affective domains of thought processes in designing higher levels of questions and tasks which should engage students in higher-order thinking lessons. These can become effective when practised consistently and systematically.

Bloom et al's (1956) categorization of educational objectives which divide comprehension processes into *Convergent* (consisting of *literal* and *comprehension*) and *divergent** thinking (comprising *application, analysis, synthesis* and *evaluative*) is conceptually akin to de Bono's CoRT thinking programme (1976), which stresses the manner in which a problem is perceived and how it can be tackled using *lateral* thinking. While Bloom et al. indirectly provide both the 'whats' and the 'hows' of the problems (in the forms of educational objectives, questions and tasks) by having them categorized and sorted according to different levels of comprehension processes, de Bono provides the 'hows' that also relate to problem-solving mechanisms i.e. a variety of accessible strategies and

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* *divergent* and *convergent* thinking (Terms used by Guilford (1959) - for definition of terms, see 1.3)

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techniques. Both conceptualize precise practical means and criteria aimed at improving a problem-solving perspective on critical thinking.

1.1 Background of the study

To think critically, students must learn general problem solving skills and develop a usable knowledge base (Dewey, 1910, 1982). One way of achieving this is to increase and sustain teacher use of those classroom questioning techniques and procedures that produce higher levels of student learning and thinking (ibid., 1910, 1982). Teachers who use relevant content and appropriate challenging questions can help students piece together information and ideas to form the concepts they need to understand their world. The best teachers, since Socrates, have understood the power of good questioning to stimulate student learning and thinking (Orletsky, 1991). More recently, researchers have taken a systematic look at classrooms to find out which questioning techniques work best to help students to learn, understand, and think about the world. The Bloom Taxonomy of Educational Objectives (Bloom et al.,1956, Bloom, 1994) has been at the forefront to help teachers learn and use effective questioning techniques.

Psychologists like Bloom et al. (1956) and subsequently Sanders (1966), Taba (1966), Kissock and Iyortsuun (1982), Perrott (1982) and others have categorized the different types of questions into the *cognitive* domain which is sub-categorized into six levels of thought processes. A second domain of questions was added when Krathwohl et al. (1964) introduced the *affective* domain, which in turn was also sub-categorized. There have been many other attempts made by researchers in trying to categorize the questions or reading questions or tasks into different categories [see Irwin (1991), Cortazzi & Jin (1996), and Thompson (1997)]. Irwin (1991) categorizes tasks into different levels of thought processes by using parameters such as *microprocesses, integrative processes* and *macroprocesses* to describe non-inferential tasks that belong to the lower-order types. *Metacognitive processes* are used to define the strategies of learning, while higher-level thought processes are described as *elaborative processes*. These consist of sub-categories like: *application, background-knowledge, appreciation, affective,*

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analysis, synthesis and *evaluative*. Such terms used to define the higher-order types of comprehension processes are consistent with the Bloom categories of higher-order thought processes. The most recent effort by Thompson (1997) sees the categorization of the questions into three major dimensions: *form* - which aims at eliciting the grammatical form of the question which normally leads to a 'yes' or 'no' answer; *content* - the second dimension, relates to the content of the question. The questions asked in this category may include those which are '*outside fact*', '*personal fact*', which, considering Thompson's (1997) examples, could be categorized into Bloom's cognitive domains. While '*giving opinion*' which displays the expression of attitudes and affections e.g. 'likes' and 'dislikes' is closely associated with Krathwohl's affective domain. *Purpose* - the third dimension - relates to the purpose of the question. The idea was to use questions to engage students to use "different layers of thinking", as Hunter-Carsch (1995) describes levels of understanding that a student may engage in during a reading activity. From a socio-cultural-political perspective, Cortazzi and Jin (1996, 1997), in their study "on why students do not ask questions" sampled students from seven countries, China, Japan, Turkey, Iran, Lebanon, Malaysia and UK and found that students from different socio-cultural and political backgrounds resort to different reasons as to why they do not ask questions in classrooms. The teachers in these countries apparently emphasized different reasons for asking questions. The various reasons for not asking or asking questions according to the authors could be further categorized into personal, psychological, academic, direct or indirect types of questions.

The Bloom taxonomy (Bloom et al.,1956), in its description of educational objectives, has been multidimensional in its use and purpose, including wide use in question and task design among other applications. This kind of taxonomy has been enormously influential in teacher training, curriculum planning and educational materials and textbook design. It categorizes different questions into six different types. The levels are hierarchical in the order of simpler to more complex or cognitively demanding. Arranged from low-order to higher-order, they

are; *knowledge* (literal), *comprehension* (literal), *application* (inferential), *analysis* (inferential), *synthesis* (inferential) and *evaluative* (inferential). Later the *affective* domain was added in by Krathwohl et al. (1964) which was then incorporated in taxonomies by Davis and Tinsley (1967), Barrett (1972) and Kissock and Iyortsuun (1982). The Bloom taxonomy could be applied to many areas of education and to several language skills, e.g. to evaluating listening or writing. In the present research, it is applied to reading, with a focus on the types of comprehension questions teachers make for students from a text in order to develop (or test) the students' comprehension of that text. Literal knowledge is exemplified by *knowledge* and *comprehension* in the cognitive taxonomy. These are considered 'low-order' or 'literal' questions for Bloom defines *knowledge* as those behaviours and test situations which emphasize the remembering, either by recognition or recall of ideas, material, or phenomena. The *comprehension* questions are defined as those that emphasize the grasp of meaning and intent of the material (Bloom et al., 1956). The *application, analysis, synthesis* and *evaluative* categories of questions are considered "inferential" for these levels involve higher order thought processes which require one to break from mere recall and remembering of facts in an attempt to engage in a 'higher-order' comprehension practice. (a detailed discussion of the Taxonomy is presented in Chapter Four)

The present study integrates the **cognitive** and **affective** domains. This integrated model is henceforth referred to as the **Cogaff** (cognitive-affective) **Taxonomy.** It is difficult to specify exactly at what level of the Taxonomy an affective question fits, as was acknowledged by Kissock and Iyortsuun (1982). In the Cogaff taxonomy, the *affective* level is placed within the higher-order categories for the following reasons.

As an affective question does not ask for literal information and breaks away from a mere recall of fact from the text, it is definitely non-literal and does not belong to the low-order types. If it is considered an inferential or higher-order question, it is difficult to locate the affective domain within the higher levels of thought processes of the Taxonomy. In the Cogaff Taxonomy, it is placed as the

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seventh category, not by virtue of its level (i.e. it may not be higher than the evaluative domain) but as a different criterion of higher-order thought processes from those of the six cognitive domains. Why then not place it at a lower-level of the higher-order? The following reasons are advanced:

a) Bloom himself (Bloom et al., 1956: 185), implies that the *affective* domain is strongly associated with the *evaluative* domain when he points out that, 'Although *evaluation* is placed last in the cognitive domain because it is regarded as requiring to some extent all the preceding levels, it is not necessarily the last step in thinking or problem solving. It may lead to the *affective* domain'. His words 'lead to' indicate that the *affective* domain is placed after the *evaluative* domain. Bloom further elaborates;

> *"Evaluation represents not only an end process in dealing with cognitive behaviors, but also a major link with affective behaviors where values, liking and enjoying are central processes involved".*

(ibid., 1956: 185)

b) It is important to include the *affective* domain in considering behaviors which relate to values, emotions and feelings. Furst (1994: 32) emphasizes that,

> *"...one can reasonably argue that the cognitive and feeling sides of mental life can neither be conceptually nor practically separated".*

Following this line of argument, Furst doubts whether values should be segregated from knowledge or vice-versa:

> *"...the distinction creates educational and philosophical problems by separating the world of knowledge from the world of values".*

(ibid., p. 32)

Affective learning (value-related) is demonstrated by behaviors indicating attitudes of awareness, interest, attention, concern, and responsibility, ability to listen and respond in interactions with others, and ability to demonstrate those attitudinal characteristics or values which are appropriate to the test situation and the field of study. This domain relates to *emotions, attitudes, appreciation,* and *values,* such as *enjoying, conserving, respecting,* and *supporting.* An objection

which might be raised is that, even allowing the inclusion of the affective category, this does not necessarily mean that it should be included among the cognitive types: why not keep it as a third major category i.e. to yield the three major levels of literal, implicational and affective? This is, in effect, what Krathwohl et al. (1964) have done. However, the present research is motivated by the aim of investigating how the use of a taxonomy might help practising classroom teachers and, from a teacher education viewpoint, the more complex a taxonomy is (i.e. the more levels or categories it includes) the less likely is that teachers will be able to internalize it and apply it. Not wishing to multiply categories beyond a practical limit, the present researcher has decided to apply Occam's razor and keep the basic Cogaff taxonomy within the accessible range of seven categories. It remains clear, of course, that although, the affective and cognitive categories are related, the affective level in the Cogaff taxonomy is different in kind from the other levels. Further discussion on the integration of the cognitive and affective domains and the place of affective questions is presented in Chapter Four.

Many scientific theories and inventions have been triggered by the capacity of their innovators or proponents to ask higher-order questions rather than the low-order ones. For example, in the inventions of hovercraft and jump-jet, a leading question was - How can the thrust of the jet be directed downwards as well as horizontally to facilitate take-off? We all ask many questions of this kind when we are young, and some of us retain the habit. A few even become facinated by single question and devote their lives to finding an answer. When Einstein, who was singled out by Gardner in his famous 'Multiple intelligences' as an embodiment of logical-mathematical intelligence (Gardner, 1995) was sixteen he asked himself a question that has since become famous: 'If I were to travel with a ray of light, what would I see?' He was inviting himself to consider the possibility, never realized in human experience, of travelling with light at is at its own speed. He spent the next ten years searching for an answer. That answer, when it was finally found took the form of the special theory relativity, which led to a major revolution in ideas about the nature of space and time (Donaldson, 1992). Inferential question like this is thought provoking and is necessary for new inventions. This does not deny the fact that literal questions are important at the initial stage of any inventions, for in any case, the process of identification (of a problem or need) would normally precede the processes of analyzing (the problem) and synthesizing or evaluating (approaches, solutions or applications) (Cropley, 1967). One can conclude that every scientific theory, technological development or invention has come into being due to the ability of the inventors to ask many 'hows' and 'whys' after acknowledging the 'whats'.

Failing to ask (and answer) the right questions may result in poor attainment in a student's academic performance or may bring serious consequences in life. Asking questions is therefore a major activity for teachers. In a life of a teacher, thousands of questions are asked during class interactions with students (Morgan and Saxton, 1991,

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Kissock and Iyortsuun, 1982; Kerry, 1982). This is particularly so if we are teaching Reading Comprehension as a subject. Although the tendency in Britain has been to integrate Reading Comprehension with other skills in English or foreign language lessons in secondary schools, in Malaysia, Reading Comprehension is taught as a lesson. Hence, in the present study, Reading Comprehension (RC) is separated out from listening, speaking and writing, or integrated skills. RC tasks, however, will almost certainly integrate other skills, so the development of RC tasks may well be the best means to develop a more integrated approach in Malaysia, especially given the current emphasis on task-based learning in EFL. RC questions play a major role in shaping RC lessons alongside the RC tasks; the question is 'Have we asked the right questions?'

There has been much emphasis on the importance of higher-order questions in developing divergent and critical thinking, yet, according to empirical research, teachers predominantly ask low order questions which only seek for specific recall of facts rather than the higher-order ones that encourage students to think (Guszak, 1967b; Carroll, 1977; Irwin, 1991; Tiedt et al., 1989; Kissock & Iyortsuun, 1982; Ministry of Education, Malaysia, 1993; Jariah et al., 1993; Bloom, 1994; Mustapha, 1995a, 1995b). Bloom called this level '*knowledge*' but others have referred to it as 'literal'. Bloom (1994: 1), in referring to an unexpectedly wide use of the taxonomy that he and his colleagues had propagated forty years earlier, by curriculum planners, administrators, researchers, and classroom teachers at all levels of education, reiterated that, "For the first time, educators were able to evaluate the learning of students systematically. As they did so, they became aware that too much emphasis was being placed on the lowest level of the taxonomy - *knowledge*". Concerning the amount of time which was spent on this lowest level, he concluded;

> *Frequently as much as 90% of the instructional time was spent at this level (lower-order), with a very little time spent on the higher mental processes that would enable students to apply their knowledge creatively.*

(ibid. p. 1)

Echoes of Bloom's concern have reverberated around the world. In Malaysia, Dr. Mahathir Mohammad, the Prime Minister (1997a,1997b), in his

recent widely publicized call for teachers to adopt a more responsible and positive attitude in order to produce citizens with a strong sense of responsibility to the nation, strongly concluded that, "...teachers only teach facts rather than the lessons that can be learned from the facts" (ibid. 1997a). This presumes, as does Bloom's comment quoted above, that the teachers' preference for factual or literal knowledge (which is non-divergent in terms of levels of comprehension) is still very prevalent. Dr. Mahathir suggests that, "...we don't need a special curriculum in order to teach our students to understand things related to social problems. For example, we can teach them indirectly from the academic subjects that are taught in school. As an example, in a geography or a history lesson, a teacher can show how they are related to values in life, how to understand the fact that a nation which once existed has now disappeared and forgotten" (ibid. 1997a). What is emphasized here is that students should be taught the skills of inferential and divergent thinking as one way of instilling in them a "sense of responsibility to the nation" (*The Star*, 1997). While the link between divergent thinking and the sense of responsibility is not at all clear in the comment made by *The Star,* it does reveal a widely perceived sense that divergent and critical thinking can be developed to support the notion of nationhood. This link with the nation, e.g. national development and so forth is normally taken for granted although from western point of view, it is a link that needs to be argued for in the light of relevant evident. One of the major means that can be deployed towards achieving the aim of producing such divergent-thinking students is *Reading Comprehension* (RC) lessons; Reading Comprehension can be utilized as a medium to encourage and train students to engage in the process of divergent thinking if it is properly utilized (Carroll,1977). Students' skills to understand, apply, analyze, argue, evaluate and make inferences on relevant issues can be sharpened in RC lessons, for in Caroll's words;

> To comprehend a language, in whatever form, is to comprehend the ideas, concepts, propositions, facts, questions, injunctions, arguments, inferences, qualifications, conditions, attitudes, emotions, and anything else that may be expressed in language materials that are spoken or written...
> ... Reading comprehension entails cognitive processes of knowing, reasoning, and inferencing that are supposed to be evolved by printed texts, oral discussions, and lectures. It also includes affect, if you believe as I do, that reading comprehension involves the apprehension of affective elements.

With the explosion of knowledge that has taken place during the past forty years, the ability to use higher mental processes has assumed prime importance. Many are becoming aware of the importance of good questions and tasks that are challenging and thought provoking (Bloom, 1994). This study investigates how the *Taxonomy of educational objectives*, propagated by Bloom et al. (1956) and the introduction of the *affective* domain by Krathwohl et al., (1964) - an extension of Bloom et al. (1956) can be utilized by reading teachers to systematize the attempt to increase the use of higher levels of *reading comprehension questions* (RCQs) associated with a range of *levels of thought processes* (LOTP) that emphasize problem solving and creative thinking.

As RCQs run hand in hand with **Reading Comprehension Activities** or **Tasks** (RCTs) it is also the aim of this study to examine how teachers can generate equally high levels of RCTs, i.e. high levels of cognitive demands which will be entailed by completion of a task. This may be facilitated and encouraged by using the same idea embodied in the taxonomy to formulate RCQs and RCTs characterized by a balance between cognitive and affective domains of thought processes. Tasks are focused goal-directed activities which are often more complex than questions because they can involve stages and sequences of activities. Although questions can be sequenced, a task may have a sequence of steps and stages in itself (this may account for different levels of thought processes in a single task i.e. in one task, two or three different levels of cognitive domains may be found). In this sense tasks and questions are separate. However, questions can be part of tasks and a teacher may set students the task of answering questions. In which case tasks may be questions. Thus, tasks and questions can overlap, however, in this research, an attempt has been made to keep them separate. Neither the researcher nor the teachers considered questions as tasks.

1.2 Rationale

For many reasons schools should be attending consciously and systematically to improving the moral values and thinking abilities of their students. Chief among these reasons is that, contrary to popular belief, the thinking skills do not just develop on their own. Beyer (1992: 2) makes it clear that, "Most individuals - especially novices, beginners and the less able, if left to their own

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devices, do not seem to develop to the fullest the skills of thinking of which they are capable. The goal of helping pupils to become effective thinkers, therefore, should be fundamental to schooling". This is especially crucial in a modern complex society where the information explosion requires more than mere mastery of knowledge. The Malaysian future workforce is expected to possess higher-order thinking skills to be creative and innovative in order to fulfill the aspiration outlined in **Vision 2020***. The acquisition of information is no longer the prime focus of education. Instead, what is essential is that pupils are taught to construct meaning from new information. They should learn to select, organize and integrate knowledge and to analyze and evaluate it to be able to use knowledge meaningfully (Ministry of Education, Malaysia.,1993).

When selecting and defining thinking skills and strategies for teaching, teachers can turn to a number of sources for assistance. There are many different techniques commonly used to teach thinking. The most popular of these methods includes asking students questions at levels of increasing difficulty (Beyer, 1992). Beyer's suggestion of staggering questions in increasing levels of difficulty is in line with the idea of using the Cogaff taxonomy in designing RCQs which can be used to engage students to think at different levels of thought processes. Apart from examining academic curriculum documents in their subject areas for their grade levels to find relevant examples of levels of thinking and tasks to construct meaning, they can also consult the recommendations of experts. These abound. Virtually all specialists in the teaching of thinking have developed a list of thinking operations that they feel is the most appropriate array of such operations to teach (ibid., 1992) (see Table 1.2.1a). Notable authorities in this field, according to Beyer (1992) include psychologists like Upton (1961) who identified six thinking operations: *thing-making* (conceptualizing), *qualification* (identifying attributes), *classification, structure analysis* (identifying the parts of something), *operations analysis* (identifying the steps in a process), and *analogy*, or Feurstein (1980) who emphasizes such operations as identifying spatial relationships as *patterns, analytic perception,* and *syllogistic reasoning,* among others.

In the UK, Feurstein's Instrumental Enrichment program (FIE), was widely used for intellectual skills training (Blagg, 1991). Blagg (1991:xii) who evaluated the effects of Feurstein's programme, on both students and teachers, has

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* **Vision 2020 -** The national aspiration to see Malaysia achieving developed-nation status by the year 2020.

discovered, on the positive side, that the FIE programme has had a remarkable effects on students' overall cognitive development: students became: (a) more active contributors to class discussion, (b) more inclined to listen to other people's comments, (c) more likely to listen to defend their opinions on the basis of logical evidence, (d) more able to describe different strategies for solving problems, (e) more likely spontaneously to read and follow instructions carefully, (f) more able to handle two or more sources of information simultaneously, and (g) more able to make spontaneous links between ideas and principles in different curriculum areas. The teachers who used FIE became more assertive, confident, and self-reliant. They also became more satisfied with their jobs, more confident of their teaching abilities, more committed to their profession, and more valued in their work. Ironically, therefore, the programme may have done as much or more for teachers as for students.

On the basis of Guilford's work (1959), psychologists like Gallagher (1965), Hudgins and Ahlbrand (1967) and Medley et al. (1966) recommend teaching such operations as *spatial conservation, inferential reasoning, making notational transformations,* and *evaluating symbol relations.* Further thinking operations for instructions may include heuristics or rules of thumb (Beyer, 1992). Beyer (1992) apparently equates 'heuristics' with 'rules of thumb'. This seems unfortunate since it may deny the creativity of learning by discovery. De Bono's (1973/1983) CoRT (Cognitive Research Trust) thinking programme, for example, teaches such heuristics as PMI (*Plus, Minus, Interesting*) as a technique for thinking around a topic or issue, CAF (*Consider All Factors*) as a rule for dealing with alternatives in a decision-making situation. Such heuristics are not themselves cognitive operations so much as rules that call into play such operations, but, by so doing, they prove useful in developing thinking (Beyer, 1992). Other experts recommend a range of very specific information-processing skills and strategies for instruction. Marzano & Hutchins (1985), for example, suggest teaching content thinking skills such as *concept attainment, pattern recognition,* and *synthesizing: storage and retrieval skills; matching skills such as problem solving.* Many others recommend teaching the skills constituting the educational objectives described by Bloom et al. (1956), especially the skills of *application, analysis, synthesis,* and *evaluation.* Philosophers often recommend teaching such operations as syllogistic reasoning, detecting logical fallacies, identifying contradictions in reasoning,

inferring, predicting and distinguishing between premises, conclusions, assumptions and inferences. Operations like these are frequently included in recommended thinking skills curricula (Beyer, 1992).

Beyer (1992) presented his thinking operations in what is known as the *Model of Functional Thinking* (see table 1.2.1a, and Chapter Three - figure 3.6(a)) within three major areas, namely: *Thinking Strategies* which comprise *problem solving, decision making* and *conceptualizing.* Next is *Critical Thinking Skills* which, among other skills, include, *distinguishing between variables facts and value claims, distinguishing relevant from irrelevant information, determining the factual accuracy of the statement, determining the credibility of a source, identifying ambiguous claims* and so forth and the third is *Micro-thinking Skills* which constitute *recall, translation, interpretation, extrapolation, application, analysis, synthesis* and *evaluation.*

The compatibility between Bloom taxonomy (1956) and Beyer's Functional thinking is inherent in the cognitive processes both models are projecting in the light of higher-order thinking skills as opposed to lower-order both models are emphasizing. Bloom et al (1956) differentiates the higher-order from the lower-order by having all the six domains of cognitive processes (arranged in an order of hierarchy) divided into two major categories i.e. knowledge or low-order (comprised of *literal* and *comprehension*) and inference or higher-order (comprised of *application, analysis, synthesis,* and *evaluative*). Beyer (1992) likewise, divides his model into two main categories i.e. 'process' and 'product'. Process that involves assessing, monitoring and planning which are referred to as metacognition i.e. a process which relates to one's ability to employ the right strategies to engage in thinking process. The compatibility between Beyer's and Bloom et al's is seen in the inclusion of the 'product of thinking' in the latter, referred to as 'cognition'. It comprises, *recalling and recounting, processing, critical thinking, decision making, reasoning, creative thinking, conceptualizing,* and *problem solving.* 'Recalling' and 'recounting' are comparable with Bloom's low- order cognitive domains (i.e. *knowledge* and *comprehension*). The other aspects of Beyer's (i.e. processing - problem solving) are compatible to Bloom's inferences or higher-order cognitive domains (i.e. application - evaluative). It is not the intention of this study to deal with each aspect of Beyer's in details.

1.2.1 Selection of a taxonomy

Dealing with the myriad cognitive operations recommended by so many proponents for instruction or found in existing instructional programmes, materials and curricula can be confusing. Careful analysis of all these sources, however, can help identify a number of thinking operations that seem to be widely recommended as basic to purposeful thinking. Table 1.2.1(a) highlights the key thinking skills in different models of thinking identified by various authors. It displays an array of some of the thinking models available in the teaching of thinking. Each model is briefly summarized. The purpose is to identify a number of thinking operations and the key words normally applied in the teaching of thinking skills in different models. Central to all the models is the operational terminology that relates to thinking such as *thinking strategies, problem solving, decision making, critical thinking, analysis of idea, creative thinking, analytic perception, cognition, synthesizing.* Each model in its propagation of how thinking skills can be taught and categorized, is identical in aims and purpose, but varied in terminology used and method advocated. With the exception of Bloom's taxonomy, the other nine

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models classify thinking skills into different categories where their levels of thought processes are not explicitly hierarchical. Thematic classification rather than a hierarchy of cognitive domains decides the order of categorizing thinking skills. Bloom's categories, on the other hand, are arranged on the basis of increasing difficulty of each category or level of thought process. The clear distinction in the levels of domains between the lower-order (literal) and the higher-order (inferential) categories, makes Bloom's taxonomy one which is the most applicable model to the present study in staging reading comprehension questions and tasks. Such questions and tasks are fundamental if students are to be engaged in various thought processes which are conducive for critical thinking. Beyer's *Functional Thinking Model* (1992), as pointed earlier, is the closest to Bloom's in his categorization of *micro-thinking* skills.

To think critically, students must learn general problem solving skills and develop a usable knowledge base. What specific general problem solving skills constitute critical thinking? The Watson-Glaser Critical Thinking Appraisal (1982), a commonly-used assessment instrument, defines five key skills (see table 1.2.1(a)): drawing inferences, recognizing assumptions, drawing conclusions, interpreting data, and evaluating arguments. Developing these problem solving skills promotes a "can do" positive attitude. The model recommends two approaches to teach the problem solving skills. First, embed the above problem solving and critical thinking modules across the curriculum. Second, if a stand-alone course is offered, it is recommended to include transferable problem solving models such as Kepner-Tregoe's method, Max Black's (1952) methods of informal logic and Dan Cougar's(1995) creativity processes (Brightman, 1997).

Table 1.2.1(a) Models of Thinking: Thinking Operations and Key Thinking Skills

Bloom's taxonomy (1956)	Cognitive Operations - Beyer (1992)	Swartz and Park's Model (1993)	CDC Model of Thinking (1993)	de Bono's Thinking Skills (1996)
Knowledge	Thinking Strategies	Thinking to Understand/Explain	Creative Thinking	PMI Plus Minus Interesting
Comprehension Translation Interpretation	Problem Solving	Analysis of idea	to give ideas	Information and Thinking CAF Consider All Factors
Application	Decision Making	Analysis of Argument	to state analogies	Alternatives APC Alternatives Possibilities Choice
Analysis	Conceptualizing	Creative Thinking	to state Hypotheses etc.	C&S Consideration and Suggestions
Synthesis	Critical Thinking Skills distinguishing between variable facts,	To generate possible alternatives	Critical Thinking	FI-FO Information In (FI) Information Out (FO)
Evaluative	relevant from irrelevant, etc.	Combination of ideas	assessing ideas	EBS Examines Both Sides
	Micro Thinking Skills	Critical Thinking	analyzing ideas	Consider Other People OPV Other People's View
	recall translation interpretation extrapolation application	Assessment of Basic Information Assessment of inferences (induction) Assessment of inferences (deduction)	Problem Solving to identify/interpret problems to identify means of solving problems to select the best way of solving problems	Lateral Thinking PO Hypotheses suppose possible poetry
	analysis synthesis evaluation	Decision Making	Decision Making	Emotions and values HV and LV High Values/Low Values
		Problem Solving		Making Decisions Thinking and Doing Deliberate Thinking

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Table 1.2.1a - Continued

Albert Upton's (1961)	Watson-Glaser Critical Thinking Appraisal (1982)	Guilford's * Structure of Intellect (1959)	Robert Marzano's (1985)	Dmensions of Cognitive Assessment Glaser et al., (1985)
Thing Making (*Conceptualizing*)	Drawing Inferences	CONTENTS *Figural* *Symbolic* *Semantic* *Behavioural*	Concept Attainment	Knowledge Organization and Structure *acquire skills* *develop skills*
Qualification (*Identifying attributes*)	Recognizing assumptions	OPERATIONS *Cognition* *Memory*	Pattern Recognition	Depth of Problem representation *form abstract principles*
Classification	Drawing conclusions	*Divergent Production* *Convergent Production* *Evaluation*	Synthesizing	Quality of Mental models *imagine a system of operation to form complex/elaborate mental models*
Structure Analysis (*Identifying the parts of something*)		PRODUCTS *Units* *Classes*	*Storage and Retrieval Skills*	Efficiency of Procedures *develop efficiency of performance*
Operation Analysis (*Identifying the steps in a process*)	Interpreting data	*Relations* *Systems*	*Matching Skills*	Automaticity of Performance *ability to handle performance automatically*
Analogy	Evaluating arguments	*Transformations* *Implications*		Metacognitive Skills for Learning *Metacognitive skills that allow individuals to reflect on/ and to control performance*

Note: Some of the models (e.g. Beyer's, de Bono's, Swartz and Park's, CDC's, and a few others) are discussed either briefly or in detail in separate chapters (Chapters One and Three) in this study on the basis of their relevance.

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* Guilford's 'Structure of Intellect.' (From Gallagher, 1965, p.23)

Beyer (1992) has introduced two extra elements in his thinking operations (i.e. thinking strategies and critical thinking skills) which can be considered as macro-thinking skills (though they are not labeled as such) apart from using Bloom's category of thinking operations in defining his micro-thinking skills such as *recall, translation, interpretation, application, analysis, synthesis* and *evaluation*. Having considered various thinking skills and their operations, and looking at it from the perspective of question and task designing, it is clear that Bloom's taxonomy of educational objectives is one of the most viable ones to use and apply, without, of course, devaluing other thinking models. Certainly, Bloom's taxonomy has proved to be the most influential and most widely cited in the literature concerning the development of thinking skills in education. Forty years after it was developed, in Bloom's own words, '...the Taxonomy has become one of the most frequently cited sources of educational research. Each year the *Social Science Citation Index* includes over a hundred articles referencing the Taxonomy' (Bloom, 1994: 7).

When one discusses 'creative or critical thinking', one cannot overlook the fundamental idea of its potential improvement as a skill promoted by de Bono, among others. De Bono (1996:11), emphasized that;

> *Thinking is a skill that can be improved by training, by practice and through learning how to do it better. Thinking is no different from any other skill and we can get better at the skill of thinking if we have the will to do so.*

The emphasis placed by the Ministry of Education in Malaysia on higher-order thinking skills and de Bono's interpretation of thinking as a skill that can be taught run congruent with how this concept is viewed in this present research. Strongly influenced by such a belief, the present study aims at using the Cogaff Taxonomy (adapted from Bloom's and Krathwohl's work - see Chapter Four) to formulate a balance between convergent and divergent reading comprehension questions and tasks that can be utilized by teachers in order to encourage students to use higher-

order thinking processes while engaging themselves in reading comprehension. The concept of thinking as a skill that can be taught is the major focus of the empirical work carried out. The concept has wide implications for how the subject of thinking might be perceived and treated. De Bono's thinking lessons are widely used with millions of pupils, ranging from those in remote South African villages to those in such leading schools as Norfolk Academy in Virginia, USA (de Bono, 1996). In Malaysia, his CoRT Thinking lessons have been practised for many years in some schools and institutions of higher learning. In Singapore, Australia, New Zealand, Canada, Mexico and the USA the CoRT programme is used in many schools. De Bono's treatment of thinking as a skill has a special implication for the development of teachers' uses of questions and tasks for 'thinking' and 'questioning' cannot be separated. They go hand in hand, like 'asking' and 'answering'. Looking at how teachers have been dealing with questions as shown in many studies in the past (as discussed in the following paragraphs), the idea of inculcating higher-order thinking skills among the students seems remote. There is an urgent need to introduce techniques that are practical and easily applied into classroom practices in order to see changes as expected.

Teachers ask or receive countless number of questions in their interactions with students during reading comprehension lessons. Kerry (1982) maintained that teachers ask about 1,000 questions a week. This confirms that questioning is an important aspect of teaching skills and of pupils' learning environment. It suggests that questions play a fundamental role in both teaching and learning. This implies that teachers should seriously consider the kinds of questions they put forward, the kind of information they elicit, and the kinds of thought processes they are trying to develop. Are teachers only expecting students to restate, repeat or recall facts that have been presented to them? Are teachers preparing or nurturing students to develop the ability to use higher levels thinking processes which provide them with the basic tenets of opinion giving and problem solving?

Such questions reaffirm the present author's intention to examine aspects of questioning techniques and task development employed by reading teachers in

Malaysia in their effort to elicit information from materials used in Reading Comprehension lessons. The focus is directed towards the application of the Cognitive/Affective (Cogaff) Taxonomy in formulating better balanced RCQs and RCTs. Many other reasons can be cited to support the importance of asking divergent questions in order to train students to think creatively or divergently. Teachers' questions arguably model modes of inquiry to students. In this case, the type and frequency of teachers' questions can be held to influence students' thinking. How could one expect the students to master higher-order thinking skills e.g. *analyzing* or *evaluating* if, most of the time, they are bombarded with literal questions which only stress memorization of facts during classroom interactions?

Teachers ask and deal with questions to check on and to reinforce teaching; students ask and answer questions to investigate and ascertain learning. Questions, thus, inform judgment on both output and input of teaching; on how successful teaching and learning are. While teachers' and students' questions are, in one sense, equally important, and complementary, there is another sense in which teachers' questions have a logical priority. This is because teachers, as educated adults themselves, may well be in position to formulate better, or more advanced, questions. As indicated above, teachers' questions are likely to be models, or at the least indirect influences, on students' learning, including students' questions. (The reverse is much less likely, though clearly it is possible). The more challenging, or higher-order, teachers' questions are thus of particular importance and, in the above way, logically prior to questions asked by students. Indeed, the point of such an argument is that if teachers do ask more higher-order questions this is more likely to promote higher-order thinking among students than a great frequency of lower order questions. This, in turn, is likely to encourage a higher rate of challenging questions among students' own questions. A study carried out by Peterson et al., (1990) has strongly indicated that teachers' performance in the use of questions and other classroom techniques is positively correlated with the improvement of students' academic performance and conduct. Higher- order questions are thought provoking and consequential in developing teaching

instructions and are effective in stimulating students' comprehension and thoughtfulness as opposed to the lower-order kinds which only seek literal information, which is non-inferential and may rely on memorization.

Through questions, essential points are reinforced. It is important that teachers' questions are directed towards the development of a range of students' levels of thought processes to encourage them to come up with high quality divergent answers, apart from training them to understand a text not only from the point of view of what is 'on' or 'within' the script but also what lies 'beyond' it. Higher-order questions can be effectively used as pre and post strategies in reading instruction. In designing reading comprehension tasks and activities, a teacher can use a variety of questions as the basis for planning lessons and teaching strategies. Through questioning, students are encouraged to think and relate their knowledge and understanding to the reading material, and to the lesson.

Skill in asking a variety of comprehension questions rarely comes automatically. It takes thought and practice to design a good set of ten or more questions. Once such skills have been acquired, a teacher might be able to phrase the questions quite easily. Well-phrased questions will not only cause a student to respond to the factual information of a reading text but to react to the main ideas, to cause and effect relationships, or sequences of events represented in the text, or to draw subtle inference from the material, and to make critical evaluation of the text.

A substantial literature on questioning techniques is available and quite well-known through the use of relevant taxonomies: Bloom et al.'s (1956) Barrett's (1972), Sanders' (1968), Taba et al's (1964), TPQI (Teacher-Pupil Question Inventory)(1968) and FTCB (Florida Taxonomy of Cognitive Behavior)(1968)[*]. Yet apparently, their application by teachers in dealing with reading comprehension questions, tasks and activities has never been considered satisfactory. The overwhelming research evidence indicates that teachers seem to

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[*] **TPQI** and **FTCB** taxonomies were adapted from Davis and Tinsley, (1967).

be more comfortable at producing literal or recall questions at the expense of the higher level forms which are essential in developing students' critical thinking in searching for knowledge and sharpening of comprehension (Stevens, 1912; Floyd, 1960; Guszak, 1967; Kerry, 1982; Kissock & Iyortsuun, 1982; Perrott (1982); Ministry of Education, Malaysia, 1993, Mustapha, 1995a). Such tendencies may be perpetuated consciously or otherwise. They are potentially unproductive to the development of students' inquisitive and critical minds, for according to Perrot (1982: 12), the kind of questions the teacher asks will reveal to pupils the kind of thinking which is expected of them.

Stevens (1912) found that teachers asked 66 percent memory-type questions drawn directly from the text book. It is startling to note that fifty years later, Floyd (1966) determined that over 75 percent of the teachers' question anticipated specific fact answers. Pate and Bremer (1967) pointed out that in the minds of most teachers, questions are mainly designed to check pupils' specific recall of facts. In their study, when teachers were asked to provide reasons for asking questions, only 10 percent stressed the use of questions to encourage students to think. While Guszak (1967), in an investigation of the types of oral reading comprehension questions designed by teachers, found that majority of the questions asked by teachers were of the literal or recall type.

According to a more recent study, the practices of teachers in questioning do not seem to have changed much. More than 90% of RC questions and tasks designed by in-service teachers, who were currently reading for a degree in TESL/TEFL at Birmingham and Manchester universities (Mustapha, 1995a) featured only literal recognition or recall types of RCQs and RCTs which required only factual responses (refer to sections 5.5(i) to (iv); and 5.8b(i) and ii)). A tendency to repeat factual questions tends to limit students' ability in applying higher order skills when responding to the reading materials. This does not augur well for the development of students' overall aptitudes and an all rounded personality.

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The inclination towards teachers' preference for low-order questions   is summed up by Kissock & Iyortsuun (1982: 24).

> "Typically 70 - 90% of all questions asked by teachers are at the knowledge (recall) level. This leaves little or no opportunity for the students to develop their thinking abilities."

Changing teachers' proclivity to design low level questions while handling reading comprehension lessons, in both oral and written lessons, which was evident as long as eighty five years ago, has apparently not been successful in initial teacher education or teacher development, otherwise researchers would find different results over time. Taba, Levine and Elzey (1964) and Hunkins (1966) have demonstrated that different types of questions stimulate different kinds of thinking, therefore it is pertinent for teachers to be conscious of the purpose of their questions. This continuing undesirable trend in questioning and task designing need to be reexamined and rectified in an effort to train students to develop minds enriched with constructive skills while dealing with reading materials. It is timely that questioning techniques which promote higher-order questions and thinking are explored. It is timely that reading tasks and activities are tailored to accommodate such purposes.

Questions play a central theme around which teaching and learning take place and they can also be seen as a fundamental tool in developing students' critical thinking. Teachers may need to make a deliberate effort to apply the techniques and underlying ideas suggested by the Cogaff Taxonomy and other taxonomies of questions in designing reading comprehension questions and tasks. `It is important that teachers become familiar with the impact questions have on communications by themselves and by their students' (Kissock & Iyortsuun,1982:1).

This is in line with a shift in focus in understanding and valuing the use of questions in classrooms. In Britain, this shift, according to Brown and Wragg (1993), has been helped by the writing of Barnes (1969, 1976) and by various Government-commissioned reports: for example, the Cox Report (1989). The

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essence of the suggestions of these writings, according to Brown and Wragg (1993), further affirms the need to consider the purposes of questions as well as the practice of questioning to encourage pupils to talk and think.

The Cogaff Taxonomy, adopting the idea suggested by Bloom et al. (1956) and Krathwohl et al. (1964) may seem somewhat outmoded if the date of its publication is considered. This is not so. Bloom (1994) was himself astonished at the fact that the taxonomy, propagated forty years earlier, has continued to remain popular with teachers, academicians and researchers as a source of reference and research. Its potential in dealing with reading comprehension texts that relate to questions and task-based activities, as far as the present author (and Bloom) is concerned, has not yet been explored to the fullest. It seems worthwhile to venture into new dimensions of how the idea can be utilized in designing of reading comprehension questions, tasks and activities.

Closely linked to each other, questions, tasks or activities are consequential with one another. Good questions with a wide range of levels and expectations are provocative for thinking and have a decisive effect on corresponding tasks and activities. This is so, for only education as a discipline seems to believe that asking good questions of `clients' would stimulate thoughtfulness and encourage expression (Dillon, 1988). For learning is an outgrowth of the questions that students are asked and the better a teacher's question, the better a teacher's teaching and a class's learning (ibid., 1988).

By the same token, bad questions may come from laissez-faire pragmatism. The dominance of lower levels of questioning ignores students' needs for wide skills in thinking in order to function as adaptable social beings in an ever changing social environment which demands an equally intellectual adaptability. Poor practice in questioning gives rise to monotonous *recall* comprehension, often inadequate, and may only stifle students' potential in developing their thinking skills to the fullest. Poor questions may limit the thoughtfulness, and control the utterances, of the people being questioned (Dillon 1988).

The foregoing discussion can be linked with the Malaysian socio-economic scenario and with Vision 2020 proposed by Dr. Mahathir Mohammad (1991), the Prime Minister of Malaysia. This plan envisions a modern Malaysia will accomplish developed-nation status by the year 2020. Among other things, it was emphasized that Malaysians should acquire skills in divergent thinking and creativity. Such skills are necessary to address and fulfill the needs and aspirations of a developed nation in accordance with the social, economic and political milieu of the country (Mahathir Mohammad, 1991).

Schools and other academic institutions that are responsible to educate the future generations of Malaysia should develop citizens who can make reflective decisions on matters that concern both themselves and society at large. If teachers pay more attention to recall learning which requires students simply to repeat information and memorize facts, they neglect the higher levels of thinking that challenge students to find relationships between ideas, draw inferences, explain facts, make judgments, form generalizations, interpret, apply skills and understandings to new situations, analyze and create new ideas. All these are pertinent in developing critical thinking. Teachers may also avoid the affective aspect of learning which directs students to make judgments and consider their values, attitudes, feelings, interests, beliefs, and emotions that influence their actions (Kissock and Iyortsuun, 1982). This would run contrary to the national mission of Malaysia as envisaged in Vision 2020.

The national philosophy outlined by the Vision 2020 seems to be in tandem with the aims and objectives of the Integrated Secondary School Curriculum, hereafter, KBSM* , first proposed by the Curriculum Development Center, Ministry of Education, Malaysia at the end of 1974, which was implemented in the secondary schools in Malaysia in 1988. Among the twenty-four specific objectives outlined by the syllabus, the need for the students to have the ability to draw

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* The Integrated Secondary School Curriculum is generally referred to, even in English, by the Malay initials of KBSM, i.e. Kurikulum Bersepadu Sekolah Menengah.

inferences and to express thoughts, feelings and attitudes by the end of their upper secondary education was strongly emphasized;

> *Students should be able to evaluate and assess the development of ideas, thoughts or arguments in what is read or heard, and make inferences or conclusions. They should also be able to summarize what is read with attention paid to the following: stated details, inferences, conclusions, character traits, viewpoints, etc.*
> (Abu Samah, 1984: 198-199)

It is essential that Malaysian teachers take into consideration the emphasis of KBSM when dealing with their teaching programme. It has been emphasized that opportunities should be provided "to sharpen students' thinking abilities in order that they are able to think clearly, objectively, rationally and creatively, as well as have an open mind and be able to make sound judgments" (Chitravelu, et al., 1995:13).

In line with the KBSM emphases, Chitravelu, et al., (1995: 14) have underlined some important principles related to classroom activities and questions that can be considered in planning the ELT programme in Malaysia;

> *In providing opportunities to sharpen students' thinking, it is important that activities and exercises presented in the classroom be meaningful, challenging and thought provoking. Similarly, and more importantly, questions asked should be challenging and thought provoking. They should include higher-order divergent questions apart from the convergent kind.*

When the KBSM was implemented in the upper secondary schools in Malaysia by 1988, it was stressed in the new syllabus that,

> *Teachers should provide opportunities for thinking operations to take place. This could take the form of class activities that require students to observe similarities and differences; to classify or rank things according to some given principle; to analyze information, to ask pertinent questions; to imagine; to invent; to create as well as to solve problems; to predict outcomes; to discuss issues and to make decisions.*
>
> (Ministry of Education, Malaysia, 1991: 4).

To what extent have such considerations spelt out in the KBSM been implemented in the ELT teaching programme in Malaysia upper secondary schools? - The answer to this question could be generated from and by looking at questions and tasks (activities) constructed by Malaysian teachers, especially those who teach reading as a subject. Looking at the results shown during pre-intervention stages in both Pilot and Field studies conducted in this research (see Chapters five and seven), the ideals intended by the curriculum still seem far away. The teachers, entrusted with the task of accomplishing the mission, indicated above, still seem inclined to prefer low-level and convergent questions and tasks in handling reading skills. This accords with the Ministry of Education's handbook known as 'Compendium, A Handbook for ELT Teachers, Volume 1 (1993: 2) in citing the 'intellectual aspects' of the KBSM, it states that,

> *In classes teachers ask many questions. However, most questions asked by teachers test memory and comprehension. Questions asking students to analyze, evaluate and to give their ideas and opinions* are rarely asked.

The results of this study (chapters 5 and 7 - pre-intervention stages), are evidence that such tendencies still persist. This runs contrary to the aspiration of the KBSM and Ministry of Education of Malaysia which emphasize the use of higher-order and divergent thinking skills. On a more positive note, the idea of using the Cogaff Taxonomy as a basis of RC question/task construction, as emphasized in this study, seems realistic and shows promising results that teachers can change their questioning (refer chapters 5 and 7 - post-intervention stages). This parallels the suggestion put forward by the 'Compendium',

> *English lessons, with the emphasis on the learner, (should) provide opportunities for teachers to ask the **latter type of questions (inferential kinds***) which will allow students the opportunity to give answers in more details*

<div align="right">(ibid., p 2)</div>

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* Author's elaboration

Too much emphasis on convergent questions/tasks of the literal and convergent kind also deprives students of the opportunity to engage in the *affective* aspect of learning. In this aspect students are encouraged to make judgments and consider the values, attitudes, feelings, interests, beliefs, and emotions that influence their actions. The moral and ethical values in the KBSM are geared towards developing humane and morally upright persons, who seek not only to know themselves better but can also contribute to the betterment and harmony of the society and the nation as Chitravelu et al. (1995) further suggested.

The Cogaff Taxonomy suggests an integration of cognitive and affective domains (see Chapter Four) in question designing and task development. It aims at striking a balance between questions and tasks designed by teachers for the development of students' thinking and reasoning and the enrichment of their personality which encompasses feelings and attitudes.

1.3 Definition of Terms

1.3.1 *The Cogaff Taxonomy*

The Cogaff Taxonomy refers to a fusion of the **cognitive** (Bloom et al., 1956) and **affective** (Krathwohl et al., 1964) taxonomies. The Cogaff Taxonomy is, in all aspects, similar to its original sources in attributes and characteristics (see Chapter Four).

1.3.2 *Reading*

The definition of *reading* in this study is in line with Grellet's (1981) consideration of John Munby's (1978) interpretation of reading which should include among other things;

> *Recognizing the script of a language, deducing the meaning and use of unfamiliar lexical items, understanding explicitly stated information, understanding information not explicitly stated, understanding conceptual meaning, understanding the communicative value (function) of sentences and utterances, understanding relations within the sentence, understanding relations between the parts of a text through lexical cohesion devices, understanding cohesion between parts of a text through*

grammatical cohesion devices, interpreting text by going outside it, recognizing indicators in discourse, distinguishing the main idea from supporting details...

(Grellet, 1981: 4-5).

Grellet further states that in order to clarify the contents of the passage, the questions can be about: *plain fact* (direct reference) which is referred to as 'knowledge' or 'literal' information by Bloom et al. (1956), Sanders (1966), Barrett (1972) and others, *implied fact* (inference), *deduced meaning* (supposition) and *evaluation*. All aspects of reading considered by Grellet are thus within the construct of different *levels of comprehension* referred to as *levels of thought processes* (LOTP) in this study (as displayed in the Cogaff Taxonomy), and originally used in the Bloom's Taxonomy. The affective mode could be derived, but not necessarily, when one 'interprets text by going outside it' (Grellet, 1981).

Another definition of *reading* which is closely associated with the creative and critical thinking, strongly considered in this study, is the one put forward by Husen and Postlethwaite (1994) which regards reading as a 'critical reading', defined as,

'... part of critical social literacy which entails the analysis and evaluation of textual ideologies and cultural messages, and an understanding of the linguistic and discursive techniques with which texts represent social reality, relations, and identity'.

(Husen and Postlethwaite, 1994: 1194)

The definitions of reading by Grellet (1981) and Husen and Postlethwaite (1994) imply that reading materials should be treated as a vehicle that emphasizes social reality, relations, and identity. Feelings and minds are the ingredients that are closely associated with social reality. This accords with how the concept of reading is treated by the Cogaff Taxonomy which promotes the balance between cognitive (minds) and affective (feelings) modes.

1.3.3 *Comprehension*

To comprehend means to know for one's self, to construct meaning and, in the process, to increase one's understanding of the world in all its textual richness (Cairney, 1990). This insight on 'comprehension' sums up the term 'reading' as used in this study. In a broader perspective, the following interpretations are also considered.

Smith (1994) states that the efforts to systematize education and instruction have led to a widespread view of *comprehension* which is regarded as a **process**, the opposite of which is ignorance. Comprehension, like thinking, is seen as a set of skills or procedures which can and must be taught. This belief is in line with the one held by Pearson et al. (1992) who regard comprehension as a set of skills or procedures that can be taught. These definitions are elaborated below.

Smith (1994) regards comprehension as the cognitive state which enables us to make sense of our situation and whatever we are trying to do from the text. The opposite of *comprehension* is *confusion*. Smith's view of comprehension derives from the fact that comprehension will only come into play when it is preceded by one's prior knowledge of the subject matter. No comprehension will take place unless it is related to the reader's previous experience.

Acknowledging the views of Cairney (1990), Smith (1994) and Pearson et al. (1992) on *comprehension*, the present study strongly considers as central the notions of comprehension as a process and a set of diverse skills that can be taught and acquired by means of instructional manipulation of a strategy or method (in this case, by means of the Cogaff Taxonomy). The present study regards comprehension as a cognitive skill that can make sense of any situation especially when dealing with divergent questions.

As a process or a set of skills or procedures that can be taught, comprehension can be broken down into a number of strategies. Pearson et al. (1992: 153-154), based on schema theory (Anderson & Pearson, 1984), have designed a set of seven strategies for readers to handle comprehension:

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1. searching for connections between what they know and new
   information in text;

2. monitoring the adequacy of their models of text meaning;

3. taking steps 'to repair faulty comprehension' when there is a failure
   to understand;

4. distinguishing important from less important ideas in text[3] ;

5. synthesizing information in and between texts[4] ;

6. drawing inferences during and after reading for a 'full, integrated
   understanding'; and

7. asking conscious and unconscious questions on themselves,
   authors and texts.

These strategies suggest an adoption of a discreet notion of higher-divergent skills of inferencing e.g. analyzing, synthesizing and evaluating, as well as the lower- convergent skills of comprehension, e.g. 'literal' as proposed by Bloom's Taxonomy and the taxonomy of questions (Barret, 1972, Sanders, 1966) in the process of comprehending a reading text. Activities in which comprehension is enhanced by the application of the comprehension strategies can be designed by using the Cogaff Taxonomy and the taxonomy of questions as shown in the present study. As suggested above, at its simplest level the Cogaff taxonomy distinguishes higher and lower order comprehension. Each of these will, however, itself consist of further levels (see Chapter Four).

Irwin (1991), among others, pointed out that one of the ways of teaching reading comprehension has been to ask questions before, during or after reading. According to her, 'although the use of questions as the only way to teach comprehension is currently being criticized, the use of questions as one part of teaching comprehension still seems viable' (Irwin, 1991: 179). As pointed out by Pearson and Johnson (1978: 154), 'The issue is not whether or not to use questions, but how, when, and where they ought to be used'. Thus, this study explores the

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[3] This relates to the 'analysis' LOTP as portrayed in Bloom et al., (1956).

[4] This relates to the 'synthesis' LOTP as portrayed in Bloom et al., (1956).

manner of how the Cogaff Taxonomy, constituted within the cognitive and affective domains, can be used as the basis for designing tasks and activities.

1.3.4 *Convergent thinking*

Guilford (1959: 359) in a well-known definition, defines convergent thinking as "one that proceeds toward one right answer, that is to say, a determined or a conventional answer". It is also referred to as literal thinking. Gallagher (1965: 25) provides some examples of convergent thinking in the following:

> T: If I had 29 pence and gave John 7 pence, how much money would I have left?
>
> Bob: Twenty-two pence
>
> T: Can you sum up in one sentence what you think was the main idea in Paton's novel, *Cry the Beloved Country*?
>
> Pete: That the problem of the blacks and whites in Africa can only be solved by brotherly love; there is no other way.

Thus, convergent thinking may be involved in the solving of a problem, in the summarizing of a body of material, or in the establishment of logical sequence of ideas and premises - as, for example, in reporting the way in which a machine works, or in describing the sequence of steps by which the passage of a bill through Parliament is accomplished (Gallagher, 1965:25).

1.3.5 *Divergent/Creative/Critical Thinking*

The terms 'divergent', 'inferential', 'creative', and 'critical' thinking are all used to relate to **higher-order thinking** in this research. Divergent thinking, as a polar opposite of convergent thinking, is defined by Guilford (1959: 381) as "the kind that goes off in different directions. It makes possible changes of direction in problem solving and also leads to a diversity of answers, where more than one answer may be acceptable". Dewey (1910) defines it as "reflective thoughts" - to suspend judgement, maintain a healthy skepticism, and exercise an open mind.

These three activities called for the active, persistent, and careful consideration of any belief in light of the ground that supports it. Dewey's definition suggests that critical thinking has both an intellectual and an emotional component. This is in tandem with the idea adopted in the present study which views critical thinking as both an intellectual (cognitive) and an emotional (affective) ability to go beyond the known without 'falling to pieces'. Whatever the exact relationship is between critical and other forms of thinking, it seems quite clear that critical and creative thinking are closely related. Perhaps Scriven (1976: 37) has described this relationship most accurately when he states:

> *Critical skills go hand in hand with creative ones; creativity is not just a matter of being different from other people, it's a matter of having different idea that works as well or better than previous ideas. ... Originality ... means novelty and validity.*

Crane (1983: 7) expressed this mutual relationship another way:

> *When reason fails, imagination saves you!*
> *When intuition fails, reason saves you!*

Like critical thinking, creative thinking is employed at various points in the broad thinking strategies of problem solving, decision making, and conceptualizing, e.g. thinking up alternatives, is a creative aspect of decision making.

Gallagher (1965: 25-26) gives the following examples of divergent thinking:

Tom: Suppose Spain had not been defeated when the Armada
      was destroyed in 1588 but that, instead, Spain had conquered
      England. What would the world be like today if that had happened?

Sam: Well, we would all be speaking Spanish.

Peg: We might have fought a revolutionary war against Spain instead of
      England.

Tom: We might have a state religion in this country.   (pp. 25-26)

Divergent thinking, as seen from the above, involves students in doing things (probing, questioning, etc.) and thinking about the things they are doing (reflecting, evaluating teacher feedback, etc.).

1.3.6 *Reading Comprehension Questions (RCQs)*

The term Reading Comprehension Questions (RCQs) refers to all questions generated from any reading comprehension texts which elicit *literal* or *inferential* information. The *Literal* questions, referred to as 'knowledge' by Bloom et al. (1956), ask for facts that are plainly stated in a reading text, while *inference* refers to the information which is implied or not directly stated. The terms *literal-level questions* and *inferential-level questions* are normally used in examining categories of reading questions and some L2/FL textbooks to distinguish between information that is in the text and information that is not (Aebersol & Field, 1997). The different levels of comprehension or thought processes that constitute both 'literal' and 'inference' and the type of RCQ that pertain to each level is discussed in detail in Chapter Four. The RCQs are divided into two categories:

i. *The Lower-order questions (LOQs)*

The LOQs are normally presented within the *knowledge* and *comprehension* levels of thought processes. They display a situation where recall is observable when a pupil states specific facts or information in much the same form as it was previously presented by the teacher or in textual material (Perrott, 1982).

A recall answer does not go beyond the answer previously presented nor does it change the form or organization of the information.. Answers can easily be judged as right or wrong compared with the original source. Also included is generally known information which is acquired through everyday experience, e.g. 'What do you buy from the post office?' (ibid., 1982). This is also referred to as *literal* information in this study. An LOQ normally illustrates convergent or literal thinking.

ii. *The Higher-order questions (HOQs)*

The HOQs normally ask for answers that belong to any of the inferential domains of thought processes namely; *application, analysis, synthesis, evaluation* and *affective* which are useful in triggering higher order thinking or thought processes (Perrott, 1982). Perrott (1982: 48) further states that, 'the higher-order thinking is observable when a pupil changes the form or organization of information in order to compare, contrast, summarize, extend, apply, analyze, reorganize or evaluate to resolve a problem'. Krathwohl et al. (1964) add the *affective* domains which display responses that relate to feelings and attitudes to HOQs.

In order to answer a HOQ a pupil may recall or be given information, but the answers must go beyond that and manipulate or use the information to produce a response which differs in form and organization from the form in which it was previously encountered. This is also referred to as the ability to *infer* or make *inferences* in this study. Higher-order answers or inferences may be judged by such standards as logic, rationality and objectivity on scales from good to bad, but are less susceptible to single judgments of right or wrong as LOQs are (Perrott, 1982). HOQs may also display elements of feelings and attitudes and normally illustrates divergent thinking (Kissock and Iyortsuun, 1982).

Relationship Between Higher-order RCQs and Divergent Thinking

The rationale for the relationship between higher-order questions and divergent, creative and critical thinking derives from recent theory on cognitive processing, which holds that information may be processed at varying depths, and from reading comprehension research that shows that factual questions require less cognitive processing than questions which require more than direct sensory memory (Andre, 1979, Anderson, 1972, Ausubel, 1963). It is possible for a reader to answer a factual question by matching the stem and responses with the text; on the other hand, higher-order questions such as generalization and inference

questions require the reader to evaluate, generalize, infer, and interpret relationships between elements of the text which are not explicitly stated (Pearson et al., 1992). Higher-order questions such as generalization and inference questions must be processed at a deeper cognitive level that at the direct sensory memory level, and they require the reader to attend to and to recall more of the passage than its surface orthographic or phonological features (ibid., 1992) thus resulting in the higher-order, divergent thinking to take place.

In looking at the difference in the levels of difficulty between the lower-order and higher-order questions, Bloom et al. (1956) themselves emphasized the dichotomy between the lower-level and higher-level thinking as displayed by the lower-order and the higher-order domains of his taxonomy when they commented as follows:

> *We have studied a large number of problems occuring in our comprehensive examinations and have found some evidence to support this Hypothesis. Thus, problems requiring knowledge of specific facts are generally answered correctly more frequently than problems requiring a knowledge of the universals and abstractions in a field. ...Problems requiring 'analysis' and 'synthesis' are more difficult than problems requiring 'comprehension'.*

(pp18-19)

1.3.7 *Reading Comprehension Tasks and activities (RCTs)*

The terms 'tasks' and 'activities' are interchangeably used in this study. Each term refers to the reading comprehension activities that are designed based on any reading text. This study proposes that the levels of thought processes (LOTPs) that are used to categorize RCQs can be likewise utilized for the formulation of challenging RCTs in a parallel manner. Tasks and activities can thereby be constructed on the basis of considering the levels and types of questions asked.

A number of scholars working within ELT have proposed that 'tasks' should form the basis of English syllabus planning and lesson design. This has recently grown into the movement for 'task-based' teaching and learning.

Crookes (1986) describes a task as 'a specific objective' while Candlin (1987) describes it as a foreseen emergent goal. Swales (1990) considers that to be designated as a task, an activity must be 'goal directed'. Long (1985) and Breen (1987) specifically mention content as well as procedures or ways of undertaking task: and the idea of assessing learner achievement and of evaluating learning through tasks is also mentioned.

The consideration of task design starts from general points such as how well different task-types support different skills involved in the enterprise of language learning, their fit with learner needs, and the learning outcome they are likely to produce. A first question, then, is whether all task types are suitable for use. Breen (1987:23) suggests that this is the case, defining tasks as 'workplans ... from the simple and brief exercise type to more complex and lengthy activities such as group problem-solving or simulations and decision-making'. Breen's definition of *task* seems to be congruent with how *task* is treated in this study. Bloom's categorisation of task according to different levels of thought processes and Irwin's wide-ranging classification of the same subject according to types and levels of comprehension processes used in the assessment of tasks in this study both justify such a claim.

1.3.8 *Levels of Thought Processes (LOTPs)*

Levels or domains of thought processes (Clark & Peterson, 1986) also referred to as levels of *comprehension processes* by Irwin (1991), refer to the hierarchy of comprehension levels as prescribed in the Bloom taxonomy of educational objectives. It constitutes six levels of comprehension or thought processes in order of complexity. The low-order consists of the two categories of '*knowledge*' and '*comprehension*' levels. These two are respectively considered 'literal' or 'non-inferential' looking at their capacity of deriving convergent information which is plainly stated in any reading comprehension text. The higher-order levels, in order of complexity consist of the further categories of '*application*', '*analysis*', '*synthesis*', and '*evaluation*'. These are the inferences

which seek for divergent information which is implied but not directly stated in any reading text. The 'affective' domain is added in to make the seventh level in the rank of LOTPs to accommodate the display of emotion and feelings when one deals with any reading text as suggested in this study (The relation between the 'affective' and the 'higer-order' categories is discussed in Chapter Four).

1.4 Aims and Objectives

The hypotheses of the present research derive from the specification of the aims and objectives of the study, as follows:

1. To examine the levels of thought processes of the teachers' Reading Comprehension Questions (RCQs) designed for a reading comprehension lesson by using the Cogaff Taxonomy.

2. To examine the levels of thought processes of the teachers' Reading Comprehension Tasks (RCTs) designed for a reading comprehension lesson by using the Cogaff Taxonomy

3. To determine if the higher-order RCQs can be used as the basis for designing equally high level RCTs according to their LOTPs.

4. To establish the fact that the teachers who are trained in the Cogaff (Cognitive-affective) Taxonomy can be induced to greater use of higher-order RCQs and RCTs that are essential for divergent, critical and creative thinking.

   An additional objective is;

5. To examine the LOTPs of the RCQs and RCTs found in the prescribed Reading Comprehension texts used in some Malaysian secondary schools.

1.5 Hypotheses

The hypotheses which are the basis of the present study are briefly listed below. Further details of the hypotheses and Hypotheses testing are given in Chapter seven. The hypotheses will be related to the formulation of reading

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comprehension questions and tasks by teachers at the stages of pre- and post-tests, i.e. before and after a workshop on questions and tasks (see Chapter Seven). For the purposes of the study the levels of thought processes involved in questions and tasks will be determined by assigning the questions and tasks to levels of the Cogaff taxonomy. This follows the normal practice in a large number of research studies on questions using the cognitive and affective taxonomies, which is almost axiomatic, if unproved. (see Kissock and Iyortsuun, 1982, Perrott, 1982, Tiedt et al., 1989, among others).

1.5.1 Null Hypotheses

1. There is no difference in the means of levels of thought processes (LOTPs) between the RC *questions* designed during the pretests at all stages (i.e. Pilot study, Field work) and those designed during the posttests at all stages of the research.

2. There is no difference in the means of levels of thought processes (LOTPs) between the RC *tasks* formulated during the pretests at all stages (i.e. Pilot study, field work) and those designed during the posttests at all stages of the research.

3. The teachers' application of the knowledge of the taxonomy of questions (e.g. the Cogaff taxonomy) is not significantly correlated with their construction of higher-order questions and tasks.

4. The RCQs constructed by means of the Cogaff taxonomy are not significantly correlated with the RCTs.

1.5.2 Alternative Hypotheses (Research Hypotheses)

1. There will be a difference in the means of levels of the LOTPs between the RC *questions* designed during the pretests at all stages (i.e. Pilot study, Field work) and those designed during the posttests at all stages of the research. It is expected that the posttest LOTPs are higher than the pretest's.

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2. There will be a difference in the means of levels of the LOTPs between the RC *tasks* formulated during the pretests at all stages (Pilot study, field work) and those designed during the posttests at all stages of the research. It is expected that posttest LOTPs are higher than the pretest's.

3. The teachers' application of the knowledge of the taxonomy of questions (e.g. the Cogaff taxonomy) will be positively correlated with their construction of higher-order questions and tasks.

4. The RCQs constructed by means of the Cogaff taxonomy will be positively correlated with the RCTs.

The central notion underlying the study is to make reading comprehension lessons as typically conducted in Malaysia a platform for training students to become better thinkers. The development of a wider range of skills and processes of thinking, in particular using more higher-order skills, will help students, it is hoped, not only to learn more proficiently, but to guide them to make important decisions in life, to solve problems, to respond inventively to circumstances and to exercise judgment responsibly. It is further hoped that pupils will apply these skills in the learning of content subjects and in real-life decision-making and problem-solving situations. In the long run, this should enable pupils to develop positive habits which might help them to become critical, creative and self-regulated, thinking learners. The first step, which is the focus of the present research, is to investigate the teachers' use of questions and tasks in reading comprehension.

The discussion so far centers around the author's concern about Malaysian teachers' apparent preference for low-levels of RC questions and tasks which are counter-productive to the Malaysian government's aspiration in trying to develop creative and critical thinking among school students in the new curriculum, the KBSM. This is seen to be a widespread tendency among school teachers globally despite recurrent emphasis and suggestions made on the importance of higher-order questions and tasks in producing creative and critical thinkers. The proposed solution to this problem is by means of using the Cogaff Taxonomy which

propagates the broader application of both cognitive and affective domains in teachers' questions and tasks. Such a broadening, if it can become part of regular classroom practice in reading comprehension and elsewhere in the curriculum, will be a necessary ingredient in creating creative, critical, responsible and sensible citizens. Such claims and attributes have been endorsed by academicians and psychologists like Brown and Wragg (1993); Beyer (1992); Morgan and Saxton (1991); Kissock and Iyortsuun (1982); Perrot (1982); Sanders (1966); Bloom (1956) and many others.

1.6 Overview of Research and Context of Malaysian ELT syllabus

This section presents an overview of the research design governing all the methods adopted in all the experiments carried out in the pilot and field studies. 'Research design' refers to "the procedure governing the process of seeking answers to questions in an organized, controlled manner" (Kuschman, 1970: 279). Radford (1964: 6) defines it as " the procedure adopted in asking questions about some aspect of the educational system and collecting facts to answer those questions". While 'methodology' is defined as "the study of science as a cognitive activity that involves production (practice) and thought (logical structure of knowledge" (Popkewitz, 1984: 66). Both concepts are important in defining and directing the construct that a research is going to undertake. The design has to be made precise and concise as this provides a clear direction for the study to follow. An experimental 'Pretest-Posttest Control Group Design' was conducted to obtain the main data (i.e. RCQs and RCTs designed by the subjects) of this study. A questionnaire survey method was also adopted to get relevant background information and the subjects' perceived knowledge on RCQs and RCTs.

The research design employed in this study is contextually associated with the Malaysian ELT syllabus; this chapter also presents and discusses the two major syllabuses i.e. the UPM ELT syllabus and KBSM within the context of the present research.

The methodology, outlined in the following paragraphs, is succeeded by a discussion on the ELT syllabus in Malaysia, and background details of Universiti Putra Malaysia (UPM) which is the context for this research.

1.6.1 Research design

This study adopted both an experimental (quantitative) and a survey (qualitative) research design. The quantitative method is based on the 'Pretest-Posttest Control Group Design' (Campbell and Stanley, 1963). It also employed a slightly more qualitative method using questionnaires as a means of data collection

concerning the subjects' opinions and perceptions on issues related to RCQs and RCTs, the two major dependent variables of the study (details of the analysis of the questionnaires are provided in Chapter 6). The quantitative framework is presented schematically in figure 1.6.1(a):

Figure 1.6.1(a) Generalized Outline of Research Framework

S	O1	X1	O2	Operation 1
S	O1	X2	O2	Operation 2

Figure 1.6.1(a) Generalized Outline of Research Framework - Pretest-Posttest Control Group (Adapted from Campbell and Stanley, 1963)

where:

S - Selection of subjects

O - Observation (pretest (O1) and posttest (O2))

X1 - Operation 1 (UPM:TESL students)

X2 - Operation 2 (secondary school: teachers, text books)

Figure 1.6.1(b) displays the outline of the present research i.e. operation of the schema shown in figure 1.6.1(a). It is conceptually adapted from the 'Pretest-Posttest Control Group' experiment (Campbell and Stanley, 1963). In Operation I, one hundred final year students, reading for a B.Ed in TESL at 'Universiti Putra Malaysia' (UPM) participated in the study. The group comprised two sets of students, namely, a pre-service group known as Ex-Matrics (EM, i.e. they were undertaking training following completion of their matriculation programme) (n=42) and an in-service group labeled Ex-Teachers (ET, i.e. they had some teaching experience but were as yet unqualified) (n=58). Their selection was based on the fact that, as final year students, they were assumed to be more mature and well-informed on matters concerning courses that had been offered throughout the TESL programme (particularly, reading courses) compared to those who were in lower semesters (junior students). From the selected schools, six teachers (two from each school) were involved in the study. The idea of having two sets of subjects, (pre-service (EM)/in-service (ET), and trained teachers (TT), to

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participate in the study is to ascertain any differences in the subjects' perception concerning the formulation of RC questions and tasks used in RC lessons according to age and classroom-experience.

Figure 1.6.1(b) Outline of the Present Research

	Research Groups (S)	N-Subjects	Phase 1 *Pretest Activity (01)*	Phase 2 *Intervention*	Phase 3 *Posttest Activity (02)*
Operation 1 **(X1)**	**UPM** *Experimental Group*	42 Ex-Matrics 58 Ex-Teachers	Text 1 *Design RCQs* *Design RCTs* *Questionnaires*	Workshop *The use of* *Cogaff Tax.*	Text 2 *Design RCQs* *DesignRCTs* *Questionnaires*
	UPM *Control Group*	10 Ex-Matrics 17 Ex-Teachers	Text 1 *Design RCQs* *Design RCTs* *Questionnaires*	NONE	Text 2 *Design RCQs* *Design RCTs* *Questionnaires*
Operation 2 **(X2)**	**2 Schools** *Experimental Group*	4 Teachers	Text 1 *Design RCQs* *Design RCTs* *Questionnaires*	Workshop *The use of* *Cogaff Tax.*	Text 2 *Design RCQs* *Design RCTs* *Questionnaires*
	1 School *Control Group*	2 Teachers	Text 1 *Design RCQs* *Design RCTs* *Questionnaires*	NONE	Text 2 *Design RCQs* *Design RCTs* *Questionnaires*

In addition

Ongoing examination of school textbooks to analyse RCQs and RCTs

The **control groups** for UPM comprised twenty fifth-semester TESL students (consisting of ten EM and ten ET) who had, by then, undertaken all the reading courses*, while from the schools, two teachers from TMS were taken as a

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* BB354: The Teaching of Reading Skills - was covered in semester three of the eight-semester B.Ed TESL Programme.

control group. As both groups of subjects (Experimental and Control) at UPM had already undertaken all the reading courses, they were considered equally eligible in handling matters concerning RCQ and RCT construction. It was not possible to get the subjects for the experimental and control groups from the final year batch of students due to a limited number in the student intake. This variable, that the control group is one academic year junior to the experimental group, is not thought to be influential on their formulating RCQs and RCTs. Any more general 'advanced' academic development of the senior experimental group may well be offset, for reading comprehension activities, by the recency of studying the teaching of reading by the junior control group.

As for Operation 2, it concentrated on two major areas; namely the examination of trained teachers' formation of RCQs and RCTs and the assessment of questions and tasks according to different levels of thought or comprehension processes used in prescribed texts. Six trained teachers were selected from three schools to participate in the study. They were teachers at three secondary schools in Kuala Pilah District in Negeri Sembilan, a Malaysian state, namely; SMDAS (Datuk Abdul Samad Secondary School), TKS (Tunku Kurshiah School) and TMS (Tuanku Muhammad School). They were selected for easy access and staff cooperation as the researcher hailed from the same district and had taught in one of the schools. The schools were well known in the state for their excellent achievements in national examinations: PMR (Lower Secondary Assessment) and SPM (Malaysian Certificate of Education) over several years. It was not possible to involve more schools and more teachers in either phase of study due to the time and management constraints as the three schools were located at some distance from each other. Furthermore, clashes of the teaching-time of Reading Comprehension lessons made it impossible for the researcher to be at two or three different places at the same time.

1.6.2 The Research Context: The Malaysian ELT Syllabus

The educational reform that began in Malaysia in 1983 saw the introduction of values into the school curriculum. The passing of the Education Bill 1995, reinforced the position of moral values and values-related subjects in the national system of education (MD.Jadi, 1997). For instance, the Education Bill, 1995 explicitly states that:

> *the purpose of education is to enable the Malaysian society to have*
> *a command of knowledge, skills and values necessary in a world*
> *that is highly competitive and globalized, arising from the impact of*
> *rapid development in science, technology and information.*

(Md. Jadi,1997:96).

It is pertinent that moral values, among other forms of knowledge and skills, be strongly considered in the formulation of any academic syllabuses in Malaysia. A major reason for this is that moral education is explicitly linked with rationality, decision making and the development of critical thinking in the new curriculum, across all subject areas, including English (ibid.:107). Within the context of the present research in Malaysia, this section discusses the ELT syllabus, with a particular reference to the syllabus of the reading course(s) currently being implemented by the Faculty of Educational Studies, UPM (*Universiti Putra Malaysia*) and the Integrated Secondary School Syllabus (1988) in Malaysia, popularly known as KBSM (*Kurikulum Baru Sekolah Menengah*. This section presents a critical view of the two syllabuses by examining the important aspects that relate to their objectives, emphases, principles and criteria of their propagation and implementation within the light of the emphasis made by the KBSM and Education Bill, 1995. A general outline of the Malaysian curriculum planning, development and application is presented in figure 1.6.2.

Figure 1.6.2 Levels of Curriculum Planning, Development and Application in Malaysian secondary Schools
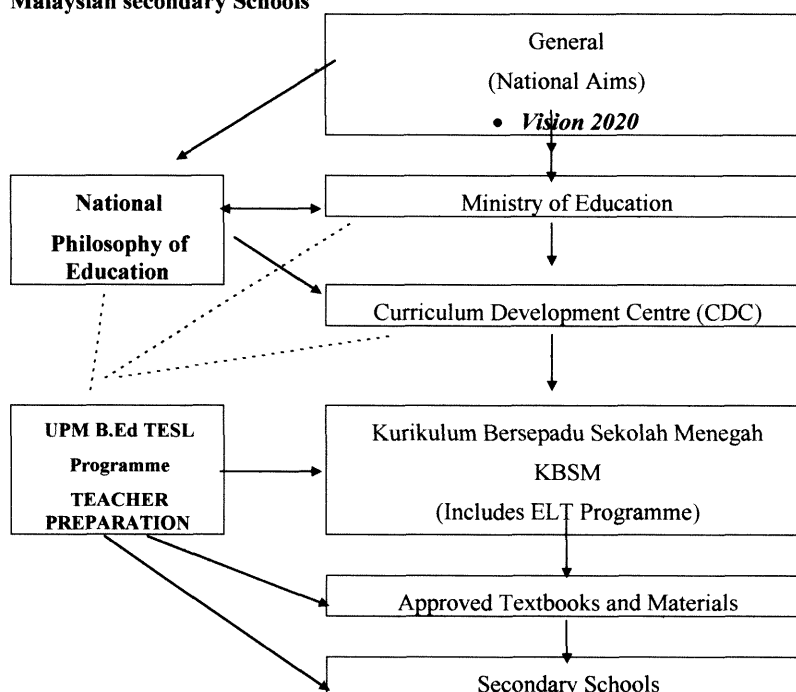
Figure 1.6.2 illustrates the levels of curriculum planning, development and application in Malaysian secondary schools. The UPM B.Ed TESL programme prepares English teachers to teach the KBSM programme using approved textbooks, but it should also pay close attention to the national philosophy of education and the programme envisaged by the Ministry of Education and KBSM. These later aspects seem to be in tension at present: the B.Ed TESL reading course syllabus is not contextualized by the national philosophy or KBSM - there is no evidence of an attempt to meet the broader aims, which include developing higher-order thinking skills.

The two syllabuses (ELT and KBSM) are, or should be, strongly linked as far as this research is concerned, by virtue of their relevance and importance to the subjects under study: UPM's subjects with the ELT syllabus; those in schools with the KBSM. This chapter also looks at the contents and pedagogical implications

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defined in each syllabus to ascertain their appropriateness in relation to the present study. As UPM (the Faculty of Educational Studies, in particular) serves to train and produce teachers who, after graduation, normally find employment in the secondary schools and other related institutions (e.g. the Ministry of Education) in Malaysia, it is important that the teaching syllabuses (ELT in particular) for both categories of institutions should be planned and designed to accommodate the aims, needs and functions of such institutions within the larger context of fulfilling and accommodating the national educational aims and philosophies. The need for the two syllabuses to be complementary in terms of aims, needs and functions is worth stressing. It is important to note that any suggestions related to improving pedagogical approaches or strategies will be of little use if the course designers fail to consider their appropriateness within the broader context referred to above and their relation to existing syllabuses currently being practised within the academic institutions of the target population.

1.7 UPM's ELT syllabus

1.7.1 Syllabus background

The Teaching of English as a Second Language (TESL) programme began its first intake in academic session of UPM (*University Putra Malaysia*) in 1982. In the academic session of 1982/83, the Faculty of Educational Studies of UPM taught the first TESL programme conferring a degree of *Bachelor in Education in TESL* in Malaysia. The faculty implemented its first ELT syllabus designed to suit the faculty's role as the first leading B.Ed TESL programme in the country at that time. In 1987, this ELT syllabus was revised to suit changing current academic and socio-economic demands. In keeping abreast with the national emphasis in education with the implementation of the new KBSM in 1988, an even wider scope for the ELT syllabus had to be considered. This led to a second revision of the syllabus in 1994. This was carried out to accommodate:

a) the demands of the KBSM syllabus which was introduced in Malaysian schools;

b) the changes in the ELT syllabus as a result of the implementation of KBSM;

c) the new orientation in teacher education as a result of new developments in the pedagogy of language teaching and literature exercised in the institutes of higher learning.

d) the orientation of UPM (esp. the TESL Unit), in its capacity as a teacher-training institute which needs to be refined in view of the need to produce better-quality teachers.

The Curriculum Committee, in this revision exercise, had given due consideration to the comments and suggestions put forward by relevant authorities, such as the programme assessor, external examining body and the advisor to the Council of Faculty (Curriculum Working-paper, 1994). The academic courses of the revised syllabus are presented in Appendix 4.1.1a (Academic Courses for UPM's TESL Programme).

1.7.2 Reading course(s) and emphasis

Only one reading course, BBI 354 *The Teaching of Reading Skills*, taught in Semester three, was offered by the TESL unit in its entire eight-semester B.Ed TESL programme (see Appendix 4.1.1(a)).

Course Objective

The skills and principles related to reading as a course mentioned in the objectives were rather general and not associated with any particular theoretical references. It is difficult to discern what skills are specifically referred to by '*various skills and components related to reading as a skill and be aware of the*

principles and methods of effective and efficient reading'. One of the factors that led to the revision of the curriculum, stated in the syllabus background, was the need to 'accommodate the demands of the KBSM syllabus implemented in Malaysian secondary schools' (see 2.6.1 - syllabus background). This claim is seen to be unjustifiable when we consider one of the important principles of the ELT programme, specified by the KBSM in its attempt to develop intellectualism as stated below;

> *In providing opportunities to sharpen students' thinking, it is important that activities and exercises presented in the classroom be meaningful, challenging and thought provoking. Similarly, and more importantly, questions asked should be challenging and thought-provoking. They should include higher-order divergent questions apart from the convergent kind.*

> (Chitravelu et al.,1995:14; summarized from CDC. Pukal Latihan KBSM, 1990: 184-185)

Looking at the objectives as stated in the course outline, no emphasis has been indicated, or implied, to substantiate whether divergent or higher-order thinking skills are emphasized in any of the subjects taught, nor can it be claimed that they are implicated in the course synopsis.

Course Synopsis and content

The synopsis or content of a course provides an insight into what is being taught and emphasized. The content provides the scope of the course while the synopsis outlines what is emphasized within the scope. They summarise the ideas underpinning the programme. Looking at both the synopsis and the content of the reading course, elements that consider reading as a means of building constructive thinking skills or teaching reading as a vehicle for evoking divergent thinking are neither explicitly nor implicitly indicated in either of them.

Looking at the objectives of the reading course and the course content of BBI 354, elements of promoting *higher-order divergent thinking,* envisaged by the KBSM syllabus, seemed to be unclear. No explicit suggestions or directions for this aspect are apparent in any of the seven areas supposed to be covered in the

programme. For evidence of this lack, one can refer to the output actualized by the research subjects (who were the subscribers of the programme) during the experiments carried out in the present research (see Chapter 7). Having successfully completed the syllabus, the students should be the best judges to see what has transpired and their output on this issue would reflect to some degree, at least, the input received from the programme. As will be shown in chapters six and seven, the subjects' perceived knowledge on the teaching of reading and their actual understanding on such a topic was discussed and measured by means of questionnaires (shown in appendix 7.1) and actual presentation of their RC questions (RCQs) and tasks (RCTs) which they had designed. One of the most comprehensive measures of RCQs is by assigning the questions to the various levels of a taxonomy of questions or comprehension taxonomies (e.g. Bloom's (1956), Sander's (1966), TPQI (1968), FTCB (1968), etc.) for according to Dunkin & Biddle (1974: 236),

> since the Bloom taxonomy was designed to express educational objectives, not surprisingly it has had extensive application in discussion of curricula and tests. Implications of the taxonomy for the guidance of questioning by teachers in interactions with their pupils were suggested by Sanders (1966), but formal applications to classroom research were not, as far as we know, reported until 1968. Two major observational systems have appeared that are based on the taxonomy, as well as modifications and other implications. ...the first is the Teacher-Pupil Question Inventory (TPQI) (Davis and Tinsley, 1968) and the other is the Florida Taxonomy of Cognitive Behaviour (FTCB) (Brown, et al., 1968)

Up till the present time, those taxonomies, or their modifications or adaptations, have been widely applied and precisely referred to for the purpose of assessing the levels of comprehension or thought processes of RCQs or RCTs, as emphasized by Bloom (1994) and Irwin (1991). In the present research it was discovered that the subjects were not familiar with the use of any taxonomy of questions in their construction of questions despite the claim made by a few that they had been exposed to the idea (see chapter six). This was further substantiated

by the results of the pre-tests carried out, as shown in chapter seven where most of the questions (an average of 92.3%) were found to belong to the low-order convergent kind. This was also true for the RC tasks constructed by them where (an average of 92.0%) were found to be *literal* i.e. within the low-order convergent category (as detailed in Chapter Seven).

The fact that these subjects, who are going to be teachers in secondary schools upon graduation, and most importantly, to be the subscribers of the KBSM syllabus, means that any shortcoming in ascribing to the demands envisioned by the syllabus will reflect negatively on the input they have so far received from the current reading course being offered in the TESL unit. Most importantly, they are less likely be able to teach reading comprehension as effectively as intended by the KBSM syllabus.

It is worth mentioning, that any reading course and whatever knowledge that it wishes to impart to the student teachers should consider the fact that it is not merely taught for the purpose of improving the reading skills of the students themselves[*] . These students, in their final year of study are expected to have acquired the required level of fluency in their own personal and academic reading in English, which is of course a second or other language for them. However, these particular students will be English teachers, so there is a strong argument that the aims of the course should aspire towards improving students' knowledge of and skills in the pedagogy of reading to equip them to become better reading-teachers and not merely better readers. The syllabus should distinguish between merely equipping the students with reading skills and polishing their knowledge of the pedagogy of reading so that they become both good readers and efficient reading teachers. Judging by the objectives, contents and synopsis of the course, it seems the BBI 354 *The Teaching of Reading Skills* (currently being offered as the only

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[*] See the reference in the syllabus to "How to read better and faster".

reading course in the TESL Unit), has undermined the aspect of developing the students' pedagogic content knowledge for teaching reading.

1.7.3 Relevance and applicability of the Cogaff taxonomy

Considerable interest on the part of the Ministry of Education has centered on encouraging development of higher levels of cognitive processing, such as critical thinking, problem solving, and creativity. This is emphasized by the implementation of the KBSM syllabus and a number of thinking lessons, such as, the CoRT thinking lessons by de Bono (1976, 1996), the Swartz and Park's Thinking Models (1993) and the CDC Thinking Models (1993). Values-related subjects across the curriculum have also been emphasized with the passing of the Education Bill in 1995 (Jadi, 1997). Consequently, academic institutions in Malaysia, in designing and implementing their academic curriculum, should strongly consider the notion of higher-order thinking, and the inculcation of values if they want to be seen to be operating within the desired ministry-approval framework. The reading course currently being implemented within the ELT programme of the faculty of Educational studies of UPM needs to be reviewed in order to keep abreast with the current demands set by the KBSM syllabus. The need for the ELT syllabus to seriously consider teaching/learning principles which emphasize the higher-order thinking aspects is becoming uncompromisingly important, lest the syllabus is treated as outmoded.

One conceptual framework that can be applied for the inculcation and assessment of these higher level processes has been that of the well-known Bloom's taxonomy of cognitive objectives (Bloom et al., 1956) that are arranged in a hierarchical continuum. As an extension of the idea suggested by the cognitive taxonomy, Krathwohl et al. (1964) developed the affective domain of educational objectives. Questions in this domain require pupils to express their feelings about things that affect them and to describe how their beliefs affect their actions (Kissock and Iyortsuun, 1982). This idea is in consonance with the current Malaysian national philosophy of education whereby faith (beliefs), values,

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emotions, feelings and interests are regarded as salient phenomena that must come hand in hand with creative and critical thinking (cognitive domains), as portrayed within the KBSM framework. (Pukal Latihan KBSM, 1992).

Both cognitive and affective domains of educational objectives can be integrated to form the Cognitive-affective taxonomy, (details of this Cogaff taxonomy are provided in Chapter 4). It is usable and effective as a tool for formulating higher-order questions, as suggested by Bloom et al. (1956, 1994) and Krathwohl et al., (1964) and supported by many other researchers (Anderson and Sosniak, 1994; Kissock and Iyortsuun, 1982, Perrot, 1982 and Tiedt et al.,1992 - among others). Crucially, for the present study, it is highly regarded by the Ministry of Education, Malaysia (1990) as an effective instrument for cultivating higher-order thinking skills. This has been strongly and positively demonstrated by the results shown in the present study (refer to Chapters Five and Seven). Apart from utilizing the taxonomy for the purpose of constructing RC questions, this study has taken the further step to examine how the taxonomy might be equally effective for the purpose of formulating RC tasks. Its application in the context of developing higher-order thinking skills would no doubt be useful and equally effective if put into practice within the ELT framework at UPM. This seems both logical and practical since UPM prepares English teachers to teach the KBSM syllabus.

1.8 The KBSM English Language Programme

1.8.1 Syllabus background

English as a Second Language is taught in Malaysian primary and secondary schools. Its position is that of a second language rather than foreign language since English is used as a medium of learning; it is a means of communication in certain everyday activities and certain job situations. It is an important language to enable Malaysia to engage meaningfully in local and international trade and commerce. English also provides an additional means of access to academic, professional, and recreational materials. The English Language

Programme in secondary schools aims to provide the basis for meeting these needs (CDC, 1990).

The English Language Programme is planned in accordance with the National Educational Philosophy which has as its core the concept of lifelong education geared towards the development of a morally upright person who is intellectually, spiritually, emotionally and physically integrated (ibid.,1991). Major aspects of these aims are fittingly summed up by the Cogaff taxonomy which calls for the integration of both cognitive (intellectual aspects) and affective domains (spiritual and emotional aspects) in developing higher-order thinking. These are, in effect, pre-requisites or part of the effort to 'provide a lifelong education' and 'develop a morally upright person' as intended by the National Philosophy of Education via the implementation of KBSM.

The English Language programme is part of the KBSM. Besides developing the four language skills, the programme also seeks to educate students in the larger context of life towards producing citizens who are knowledgeable, who have high moral standards and who are able to contribute to the betterment of Malaysian society.

The English Language Syllabus for the secondary schools extends the scope of the English primary school syllabus. It deals with topics that are drawn from the contexts of the home and school; the community, town and village; the state and country; and the ASEAN region and the world (ibid., 1991). The present study, in its choice of reading topics/texts used by the subjects to elicit questions and formulate tasks during the field work, considered a wide range of topics suggested by the syllabus. The topics provide the context in which the language skills, language contents and moral values are taught and developed in an integrated manner (*op cit.*, 1991).

The English Language Programme also seeks to provide some opportunity for self-expression and creativity and for the development of aesthetic appreciation through the infusion of literacy elements. It is hoped that the use of

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literary materials such as short stories, excerpts from novels, fables, legends, and poems will not only provide students with the opportunity of being exposed to good models of the target language but will also relate to more general aspects of education in the humanities.

1.8.2 Aims, Objectives and focus

Aims

The programme aims at building and extending upon the proficiency of the students so as to equip them with the skills and knowledge of English to communicate in certain activities and job situations and provide points of take-off for various post-secondary school needs.

Objectives

At the end of the upper secondary school English Language Programme (CDC, 1991), students should be able to:

- o Listen to and understand spoken English in the school and real life situations;
- o Speak effectively on a variety of topics;
- o Read and understand prose and poetry for information and enjoyment;
- o Write effectively for different purposes.

There seem to be conspicuous inconsistencies between what is stated in these objectives and what is generally emphasized in many parts of the curriculum specification. Looking at how much emphasis is given towards the teaching of higher-order thinking skills in keeping with the expectation as envisaged by the National Philosophy of Education, and advocated by the curriculum proponents, the above-mentioned objectives seem to be 'unaccommodating' and fall short of the expectation of the National Philosophy of Education. At the least, the objectives are clearly skills-based and, while reading "for information and enjoyment" might include the development and use of higher-order thinking skills, there is no specific directive or encouragement to develop these skills and the evidence (cited in Chapter One) suggests that without such specification many, or

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even most, teachers will continue to teach the lower-order reading skills, for information only.

To meet the national aims, the objectives of the ELT programme have to be much wider in scope and perspective than those presented above. The Ministry of Education (1991: vii) clearly envisages this broader view:

> *The English Language Programme is planned in accordance with the National Educational Philosophy which has as its core the concept of lifelong education geared towards the development of a morally upright person who is intellectually, spiritually, emotionally and physically integrated.*

Considering this wider scope, a number of implications are worth drawing out. Firstly; it is wise to consider the aims and objectives of the programme within a larger context so that the programme can be used as an effective means to develop the higher-order thinking skills currently being stressed in the Malaysian system of education. This is evident by looking at the use of several sets of materials in some secondary schools and tertiary institutions in Malaysia (CDC, 1994): CoRT thinking lessons (1964, 1994), Swartz and Parks' Thinking Models (1993), CDC Thinking Models (1993) and the recent emphasis on the KBKK (*Kemahiran Berfikir Secara Kreatif dan Kritikal*) (1994) programme ('The Skills in Creative and Critical Thinking').

Secondly, the objectives cited earlier seem to fall short of the expectation of the KBSM. This is seen in the emphasis in the Pukal Latihan KBSM (1990) which states that, 'In order to develop intellectual progress and encourage thinking, teachers should provide opportunities for thinking operations to take place. This could be in the form of class activities such as classifying, analysing and asking pertinent questions'. The suggestion was put forward in the curriculum specification for the English Language Programme for Form IV.

It is even ironic to consider the validity of the objectives outlined earlier when the Ministry in the Curriculum Specification for Form IV (CDC, 1989)

further on asserts that, 'In teaching the Curriculum Specifications for Form IV the teacher should observe the principle of integration of language skills, language contents, and moral values. They should infuse literary elements into the language programme; and encourage and stimulate students to think and question through the use of challenging and thought-provoking stimuli and meaningful activities'. Are they not (among other aspects) suggesting higher-order thinking skills and development of moral values through the use of divergent questions and tasks? It is likely that the Ministry's specifications will be very limited in their realization through the KBSM English Language objectives which call for students simply; 'to listen and understand spoken English in the school'; 'to speak effectively on a variety of topics'; 'to read and understand prose and poetry for information and enjoyment'; and 'to write effectively for different purposes';(CDC, 1990: 1). Can such aspirations as implementing 'the concept of lifelong education geared towards the development of a morally upright person who at the same time intellectually, spiritually, emotionally and physically integrated' (stipulated by the syllabus in line with the National Philosophy of Education) be realistically realized when the ELT programme is apparently devoid of cognitive and affective domains in its curriculum objectives?. Clearly there are inconsistencies between the stated objectives and the philosophy and values which are expected, derived from the Pukal Latihan KBSM (CDC, 1990). When one source suggests the use of cognitive taxonomies and thinking models (e.g. the suggestion to use Bloom's taxonomy and other thinking lessons) to be used as teaching tools in order to generate higher-order, critical and creative thinking, the other source of the curriculum specification reverts to suggesting straight-forward, simple and convergent curriculum objectives which are likely to be sterile for higher-order types and primarily seek to develop convergent-thought processes.

Focus

The programme emphasises the teaching of both oracy and literacy skills, the sound system, grammar and vocabulary from the language contents required to teach those skills (Ministry of Education, malaysia, 1991).

The skills are taught through specified topics which are based on certain settings. At the upper secondary school level, the focus of the setting is the ASEAN region and the world. At the lower secondary school level, the focus is on the home and school, in Form I; the community, town and village, in Form II; and the state and country, in Form III. The moral values for each year are stipulated in the curriculum specification.

1.8.3 Important Considerations in the Curriculum Specifications

It was stressed in the curriculum specifications for English Language for Forms IV and V (CDC, 1991) that the following considerations should be taken into account in teaching. They are stated at a minimum level and teachers should not consider them excessive. Teachers are, in fact, encouraged to elaborate the content if necessary.

1.8.3 (i) *Integration*

Taking the time factor into consideration, the specifications must be reorganized into a manageable form for teaching. The principle of integration must be followed. The four skills, content, moral values and literacy elements should be integrated and taught as a whole through suitable selection of materials and activities (CDC,1991). In the reading comprehension lessons, this is possible if lessons and reading activities and questions are constructed and directed on the basis of using different levels of comprehension, as suggested by the Cogaff taxonomy where knowledge is categorized according to different levels of comprehension processes: *literal, comprehension, application, analysis, synthesis, evaluative* and *affective*. Integration as assumed from the curriculum specification (CDC, 1991) refers to the integration between the four language skills (i.e. writing, reading, speaking and listening) and their relevant contents which may be considered as literacy elements (cognitive aspects of teaching and learning) with the moral values (affective aspects) (e.g. 15 moral values as stated in the Education Bill (Md. Jadi, 1995)). The Cogaff taxonomy also propagates the integration of both cognitive (literal to evaluative) domains and the affective domains in

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classroom teaching (e.g. RC lessons), it is therefore suffice to say that the Ministry's idea of 'integration' is well acknowledged by the idea emphasized by the Cogaff taxonomy.

1.8.3(ii) *Cumulative and Spiral Build-up: Repetition, Reinforcement and Consolidation*

Language skills need to be built up cumulatively and treated in a spiral manner so that repetition and constant use will maximize learning. Consolidation and reinforcement will enable students to develop the ability, knowledge and confidence to use the language effectively and purposefully (CDC,1990).

1.8.3(iii) *Encouraging Thinking*

Teachers should provide opportunities for thinking operations to take place. This could be in the form of class activities such as classifying, analysing and asking pertinent questions. As one way of ensuring students' intellectual development, the Compendium for ELT Teachers (1993: 4) suggests that, "The questions asked by teachers should be thought-provoking". Thought-provoking questions directed towards eliciting higher-order information can be triggered by using divergent questions, categorised in the higher-order and divergent categories of the Cogaff Taxonomy (e.g. *analysis, synthesis, evaluative* and *affective*). If teachers are expected to include this element in teaching plans and activities, it may be a futile effort without practical guidance that they can refer to. The Cogaff Taxonomy might serve as a practical guide in question and task/activity development if teachers are shown ways to use it to encourage thinking to take place in lessons.

In view of the low-order objectives of the curriculum mentioned earlier, the suggestion put forward in the curriculum that teachers' questions should be thought provoking is seen as another inconsistency between what needs to be achieved and

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what is expected by the curriculum. Objectives normally serve as the guiding principles on which the measurement and assessment of success are based to see whether success is achieved or otherwise. Can busy teachers who stick to the stipulated objectives in planning questions and tasks be blamed if they fail to produce thought provoking questions and tasks as required by the curriculum? When many teachers have similar interpretations of what is required by the curriculum objectives, can the success expected by the curriculum be realized?

1.8.3(iv) *Infusion of Literacy elements* (Pukal Latihan KBSM, 1992)

Teachers must expose students to models of the English language such as excerpts from novels; short stories; fables; legends and poems. They should be used as reading texts for study and enjoyment.

1.8.3(v) *Grammar*

Grammar is to be taught in context and in a meaningful way. However grammar items can also be taught in isolation if necessary.

1.8.3 (vi) *Vocabulary*

The teacher needs to extend and build upon the store of vocabulary the students already have. This can be done by introducing new words and providing contexts for their use, as well as providing opportunities to practise and use them.

1.8.3 (vii) *Composition Writing*

Instructions on how to write a composition must be presented to the students. Students should be guided through the processes of planning, drafting, editing and the final writing of the composition. Models of the expected product should be provided. Activities and exercises on grammar and vocabulary which are needed to write the composition must be incorporated in the lessons.

1.8.3(viii) *Focus for Form IV*

The focus for the Form IV Curriculum Specifications is on broadening the student's knowledge and experience in the language appropriate to their maturity

level. Topics chosen are of a more complex and sophisticated nature. The setting has been extended from the Malaysian setting as a base, to that of the ASEAN region and the wider world.

1.8.3(ix) *Curriculum Specifications for Form IV*

The curriculum specifications indicate the minimum to be achieved by students at the end of Form IV. Teachers should extend upon these specifications if their students have the capabilities to handle them.

The specifications list the four language skills, namely, listening, speaking, reading and writing, and the sound system, the grammar of English, and the vocabulary to be taught. Teachers should first use the Malaysian setting as a base to teach the specifications. The setting should be broadened later, as mentioned above. Teachers should emphasize the principles of good citizenship, moral values, and a Malaysian way of life. This brings forth yet another discrepancy that is rather obvious. The principles of good citizenship, moral values and a Malaysian way of life which call for the activation of the affective domains are not at all stressed in the curriculum objectives. So many emphases are given to the cultivation of higher-order cognitive and affective domains elsewhere, yet they are not mentioned in the objectives stipulated in the curriculum.

1.8.3(x) *Listening and Speaking*

The Listening and Speaking component deals with the skills of sound discrimination, extracting information, and prediction, in order to perform specific functions. The skills also include determining and using registers to suit different audiences, for different purposes, so that students are able to express their thoughts clearly and succinctly and be able to participate fully in conversations and discussions.

1.8.3(xi) *Reading*

The Reading component outlines the skills required to develop comprehension and study skills, and to help students build up their English

vocabulary. These skills include skimming, scanning, summarizing, inferencing and interpreting, enabling students to read and understand material in English both for information and for enjoyment.

1.8.3(xii) *Writing*

The writing component requires the students to write English clearly and relevantly, and to organize materials logically. Students will be introduced to the techniques of writing, so that they are able to write in a coherent and cohesive manner suitable to the audience and purpose. These skills will enable students to use spelling, punctuation and grammar correctly. Attention given to the processes involved in writing includes the skills of planning, drafting, revising and editing.

1.9 Conclusion

The methods adopted in the pilot and field studies were carried out in accordance with the 'The Pretest - Posttest Control Group Design' proposed by Campbell and Stanley (1963). The experiment was conducted with care to ensure that all the methods and steps taken were contributing towards the research objectives as stated in Chapter One. 'As maturation was a frequent critical focus in experimental studies in education' as admitted by Campbell and Stanley (1966: 13), elements that may have contributed towards 'maturation' were controlled in this study: the interval between phases 1 and 2 was minimal; the subjects had equal opportunity, levels of experience and qualifications in relation to the teaching of Reading Comprehension lessons. Thus both the experimental and control groups involved were at par with one another 'experimental maturity'.

Having reviewed the two curricula; the ELT syllabus and the KBSM, a number of issues can be raised under several headings:

i. *Aims of curricula vs. philosophy*

The KBSM syllabus embraces the National Philosophy of Education. It has a core concept of 'lifelong education geared towards the development of a morally upright person who is intellectually, spiritually, emotionally, and physically

integrated'(CDC, 1991) as the pillar of its philosophy, and directions for practice. Yet there are some inconsistencies between its stipulated objectives and expectations. None of the objectives mentioned in the Syllabus Specifications of English Language for Forms IV and V (CDC, 1991) can be clearly categorized under higher-order domains of thought processes despite various claims to that effect made in various sections of the syllabus. While meeting some of the objectives might involve the higher-order domains, none of them apparently implicates the development of these domains. Similarly, the claims made by the proponents of the ELT syllabus to give due consideration to the demands of the KBSM, which stipulates the use of higher-order thinking operations in its emphases and practices, seem to be unjustified, as far as the reading course is concerned, since no implicit or explicit mention to develop such thinking is made in the objectives of the syllabus (refer to 2.7.2).

ii. *Review of objectives of curricula*

The aims and objectives of the two syllabuses need to be more explicitly related to thinking. The current objectives which emphasize low-order, convergent interpretation of information do not match the claims made in the two syllabuses which emphasize higher-order, divergent, critical and creative thinking. The inconsistencies between claims and expectations are potentially confusing for teacher educators, trainee teachers and practising teachers. Relevant notions of higher-order thinking processes should be explicitly stipulated in the objectives. This will strike a balance between the two perspectives which emphasize both literal and higher-order information.

iii. *Emphasis and pedagogical implications*

The Examinations Syndicate of the Ministry of Education, Malaysia has introduced a new format of the SPM* English Language examination papers, in

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* SPM - *Sijil Pelajaran Malaysia* (Malaysian Certificate of Education) set at the end of Form V.

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1997 (see Appendix 1.1a and b). This new format gives equal weight to the objective (i.e. 50%) and subjective (50%) of a total of fifty questions. The questions cover all topics and language skills in the syllabus specifications which include; *reading comprehension, language usage and grammar, language forms and functions.* (Ministry of Education, Examinations Syndicates, 1995). The 1997 format has been introduced to accommodate an emphasis on the application of subjective higher-order thinking processes across the curriculum in secondary education with the implementation of the KBSM syllabus. The previous exam format which was in operation from 1993 to 1996 (ibid.,1995), where all questions were of the **objective** type are seen to be no longer valid in light of the current emphases on education in Malaysia which aims at producing creative and critical thinkers. The new format of exam questions calls for teachers to acclimatize students to a wide range of levels of questions and tasks. Again, this emphasizes the need for teachers not to limit themselves to literal levels in setting questions and tasks.

The new demands of the Malaysian education system have a direct implication for UPM courses, by virtue of its role as a teacher-training institute. UPM has to be sensitive to the needs and emphases of the new mindset envisaged in the KBSM syllabus. The ELT syllabus, among other pedagogical considerations, should emphasize the skills for teachers to ask thought provoking questions via reading comprehension lessons in order to train students to engage in higher-order thinking processes. The idea suggested by the Cogaff taxonomy could well fit the role.

CHAPTER TWO

REVIEW OF LITERATURE

2.0 Introduction

The basic purpose of this study is to enumerate, categorize, and analyze the types of reading comprehension questions and tasks (activities) designed by the subjects of the study: pre-service, in-service, and trained teachers. It was also the aim of the study to treat RC questions and tasks as vehicles of teaching creative and critical thinking. This has implications for the inclusion of certain types of information in a review of the literature. While there is a multitude of information and research which can be found that relates to aspects of this research, few studies have been completed which deal specifically with the kind of analysis employed in this research.

As a result of these concerns, the present author has attempted in this literature review to be critically selective in reporting relevant research and ideas. As this relates to the research findings incorporated in this study, the author has included only those which had relevant purposes, or appropriate models, research designs and statistical methods, or implications which could be logically drawn on for this study. There has, therefore, been no attempt to report all research studies and findings, or summarize the views about the development of reading skills of all reading authorities. An attempt to do so would produce an unwieldy review of the literature.

This review has been organized to discuss major topics related to the development of reading comprehension as a means of developing creative and critical thinking among students. This chapter reviews relevant studies on higher-order thought or comprehension processes within a wider scope of cognitive processes. This establishes the importance of this kind of study. The chapter highlights relevant issues on creative and critical thinking in order to provide a better understanding of the topic which relates to higher-order thinking, and to

underline the importance of *higher-order* questions (HOQs) and activities/tasks (HOAs) in training students to become creative and critical thinkers. This chapter also outlines a number of studies carried out in some countries e.g. UK, USA, Holland, and Malaysia which highlight the predominant *social-emotional characteristics* research in education, and the need for a change in focus with the emergence of the much needed emphasis on *cognitive processes* in education in keeping changed aims and purposes of education. The importance of critical and divergent thinking has consequently become central in academic settings in many countries. From the Malaysian perspective, the KBSM (1988) serves as the main current source of reference for Malaysian teachers. It asserts that superficial and low-order thinking tends to predominate during classroom instruction despite the rigorous stress on the importance of higher-order, divergent thinking in the new curriculum.

This chapter aims at providing a wider perspective on issues pertaining to *critical* (Ennis,1985*), creative* (Malaysian Ministry of Education, CDC, 1992*),* or *higher-order thinking* (Bloom et al.,1956*),* and how Reading Comprehension (RC) questions and tasks, characterized by *aesthetic domains* (affective level), can be treated as a vehicle which not only activates higher-order thinking but also serves as a means of developing awareness of feelings and attitudes, as part of socio-emotional development. The review sets off with a general view of research interests which predominated during the period prior to the late sixties and early seventies in relation to studies in non-science-based research to determine the emphasis on *cognitive processes* in the field of educational research. This is followed by an overview of relevant studies carried out in several countries which subsequently focuses specifically on studies of cognitive processes carried out in Malaysia. These studies concentrate around the need to develop higher-order thinking skills across the curriculum as emphasized by the KBSM. This effort is undertaken in an attempt to address the reportedly common tendencies among the teachers to use low-order or factual questions and tasks (CDC, 1992). This chapter further addresses relevant theories, models and principles of thinking which are

directly or indirectly related to the concept of using different levels of thought processes as suggested by Bloom et al. (1956). Finally, the chapter considers how reading comprehension questions and tasks can be used in order to activate higher-order thinking operations.

2.1 Areas of Study in Non-science Based Research

Basically there are two major areas of study which predominate in non-science based research: *social-emotional characteristics* and *cognitive processes* (Dunkin & Biddle, 1974). In education, examples of studies of a social emotional nature are those which look at the aspects of personality of teachers, measurement of non-cognitive variables e.g. socio-economic status of teachers, teachers' academic background, teachers' perception of students' attitudes in relation to students' academic performance etc. have been the focus of research on teacher education. The aspect of **cognitive processes** in teaching had rarely been given serious emphasis; before the 1970's research on teacher education was still dominated by social-emotional characteristics (ibid.,1974). Dunkin and Biddle emphasize this by citing the fact that the 1963 edition of their Handbook had barely contained any chapters on cognitive aspects of teaching. Indeed, there was only one entry pertinent to this topic in the entire lengthy index of the handbook (ibid.,1974)

2.2 Studies on Cognitive Processes in Classrooms: an overview

As the development of cognitive processes is treated as the major parameter of the present study, this section outlines the historical development of academic interests and research studies related to cognitive classroom processes from the early stages in the sixties to the current development in the eighties and nineties. This scenario is important in order to provide the present research study with a background perspective, in light of the current interest in cognitive/affective processes. Academic materials and research studies within the domains of cognitive/affective processes have attracted the attention of the education systems and research interests in education since they first began to make an impact from the late sixties to the nineties (consider Perrott (1982); Kissock and Iyortsuun

(1982); Tiedt et al. (1989); Jacobson & Spiro (1995); Langer (1993); Adreani (1990); Beal (1991); Buckley (1993); Cotter (1992); Donovan (1989); Gordon (1991); Hayes (1990); Ministry of Education, Malaysia (CDC) (1992); among others).

Philip Jackson's *Life in Classrooms* (1968), reported the results of an early study that attempted to describe and understand the mental constructs and processes that underlie teacher behavior (Dunkin and Biddle, 1974). Jackson portrayed the teacher's task as being complex and made conceptual distinctions that fit the teacher's frame of reference (such as between the pre-active and interactive phases of teaching). He called the attention of the educational research community to the importance of describing the **thinking and planning** of teachers as a means to achieving fuller understanding of classroom processes.

In 1970, in Sweden, Dahllof and Lundgren conducted a series of studies of the structure of teaching process as an expression of organizational constraints. While this work was primarily concerned with the effects of contextual factors on teaching, it revealed some of the mental categories that teachers use to organize and make sense of their professional experiences. The importance of Dahllof and Lundgren's study can be seen in the use of the "steering group", a small subset of a class that their teachers used as an informal reference group for decision about pacing a lesson or unit. During whole-class instruction, when the students in the steering group seemed to understand what was being presented, the teacher would move the class on to a new topic. But when the teachers believed that the steering group students did not understand or perform up to standards based on their answers to the questions which *were of a wide range of levels*, the teachers slowed the pace of instruction for all. The steering group is important as a concept because it verified empirically how teachers' mental constructs can have significant pedagogical consequences.

In 1974 The National Institute of Education in the United States convened a National Conference on Studies in Teaching to create an agenda for future research

on teaching. The participants in this planning conference were organized into 10 panels, one of which produced a report (National Institute of Education, 1975a:1) that illustrated a rationale for and defined the domain of a proposed programme of research on teachers' thought processes. It argued that research on teacher thinking is necessary if we are to understand that which is uniquely human in the process of teaching:

> *It is obvious that what teachers do is directed in no small measure by what they think. Moreover, it will be necessary for any innovations in the context, practices, and technology of teaching to be mediated through the minds and motives of teachers, to the extent that observed or intended teacher behavior is "thoughtless," it makes no use of the human teacher's most unique attributes. In so doing, it becomes mechanical and might well be done by a machine. If however, teaching is done and, in all likelihood, will continue to be done by human teachers, the questions of the relationships between **thought** and **action** becomes crucial.*

(National Institute of Education, 1975a: 1)

The report went on to cite research on human information processing which indicates that a person, when faced with a complex situation, creates a simplified model of that situation and then behaves rationally in relation to that simplified model. Such a tendency had already been observed in Bloom's work when he simplified complex educational aims into a hierarchy of objectives in his Taxonomy of Educational Objectives (Bloom et al., 1956). Simon (1957: 2) claims that "To predict...behaviour we must understand the way in which this simplified model is constructed, and its construction will certainly be related to one's psychological properties as a perceiving, thinking, and learning animal" (Simon, 1957: cited in National Institute of Education, 1975a). To understand, predict and influence what teachers do, the panelists argued, researchers must study the psychological processes by which teachers perceive and define professional responsibilities and situations.

The report presented an image of the teacher as a professional who has more in common with physicians, lawyers, and architects than with technicians who execute skilled performances according to prescriptions or algorithms defined by

others (see Schon, 1983). This view of the teacher as professional has had a profound effect on the *questions asked, tasks used and methods of teaching employed, and the forms of results reported in research on teacher thinking.* It influenced new initiatives in research on teaching in a more instrumental way including the first large program of research on the thought processes of teachers, in Michigan, USA.

Despite the fact that studies on cognitive processes had begun to make an impact in the system and research in education as early as in the sixties, the 1986 version of Wittrock's (1986) *Handbook of Research on Teaching* contained only two topics related to cognitive processes. Significantly, though, the research literature has since expanded (Calderhead, 1984, Kagan, 1990) and many implications for instructional practice have emerged. Among them are suggestions that students are introduced to the concepts which are learned as well as the thinking skills which are to be emphasized. This is followed by class activities which develop cognitive skills. Then the students are provided with opportunities for them to improve their transfer of critical thinking skills information outside the formal classroom setting (Gordon, 1991).

As professionals, teachers should be in a position to plan and execute challenging yet interesting lessons that call for students' active participation. In Reading Comprehension (RC) lessons, this is more likely to be possible when relevant RC tasks and RC questions are carefully designed and formulated where divergent thinking is encouraged and sought after. A reading passage, no matter how interesting it may be, will fail to become a thought provoking source if it is tackled with too many questions and tasks that only call for convergent responses. Students are unlikely to engage in higher thinking processes when they are bombarded with literal questions and non-inferential tasks.

Recent research in reading instruction in the United States has become more diverse as a result of the increasing diversity of the population growth linguistically, socially, ethnically and culturally. Fitzgerald, (1995) asserts that, "As

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an outgrowth of such concerns, more and more research has been conducted on ESL reading issues over the last decade or so. Many facets of ESL reading have been studied, ranging from instructional evaluations to socio-cultural issues to cognitive processes". Research on *cognitive processes* was seen to have become a major focus in ESL reading research in the United States (Fitzgerald, 1995). In her study, Fitzgerald (1995) outlined four of the major theories related to reading namely; the *Psycholinguistic* view of reading, the *Schema* theory, *Interactive* theory and *Metacognition*. She did not, however, touch on another recent development in psycholinguistic reading theory, *Transactive theory*. The emergence of *Transactive* theory is seen as an extension of the *Interactive* theory which regards the meaning created as readers and writers encounter texts as 'greater than' the written text or the reader's prior knowledge (Rosenblatt, 1978; Shanklin, 1982). This distinguishes it from the *interactive* theory. Details of each theory are given in Sections 3.8 and 3.8.1 of this chapter.

One major observation made by Fitzgerald (1995) was that there are no major differences in terms of principles in reading instruction, with regard to cognitive aspects employed by ESL readers as compared to those in their L1 (native speakers) counterparts. She points out that,

> *The images drawn from the findings in this review strongly imply that for the most part, at least with regard to the **cognitive aspects** of reading, United States teachers of ESL **students** could follow sound principles of reading instruction based on current cognitive research done with **native English speakers**. There was virtually no evidence that ESL learners need notably divergent forms of instruction to guide or develop their **cognitive reading processes.***

> (Fitzgerald, 1995: 148).

A main conclusion of a parallel review was that results of instructional studies with ESL learners were positive and highly consistent with findings generally reported for native-language participants (ibid., 1995). This implies that, as far as cognitive reading processes are concerned, teaching and learning of reading as a subject for ESL learners can apply the same principles of reading instruction as used in the L1 situations. ESL teachers need to be extra cautious in their reading

topic selections and question wording and making interactive comments in order to maximize the opportunity for activation of thought processes (Fitzgerald, 1995). Fitzgerald maintains, "Another example is that the potential effects of background knowledge suggest that the development of readers' topic knowledge for reading selections warrants even more attention from teachers that in other situations" (Ibid., 1995: 148).

The interest on the topic of critical thinking in the U.S. has been enormous. Many theories and teaching methodology of creative and critical thinking were developed. Suggesting on how to develop ideas, activities, and resources for teaching thinking, Tiedt et al (1989) emphasize,

> *... our first concern was emphasizing thinking skills as part of the teaching writing. As we developed strategies for engaging students in writing activities, we gradually realized that what students are writing is "thinking." Quickly, we leaped to the further conclusion that what they read is also "thinking." Our purpose became therefore to teach students to write "thinking" as they communicated their ideas to others and to read the "thinking" of their peers as well as that of published authors.*

(Tiedt et al., 1989: xiii)

A programme known as QUILT *(Questioning and Understanding to Improve Learning and Thinking)*, initiated in 1991 was designed to increase and sustain teacher use of classroom questioning techniques and procedures that produce higher levels of student learning and thinking (Orletsky, 1991)(see Appendix 3.2 for details). Penner (1995) has discussed in detail the topic of teaching critical thinking. Among other things, he outlines the definition of critical thinking, its necessities, the methods that can be adopted by classroom teachers to develop critical thinking; such as, *breaking down inadequate thinking, building up new thinking, and modelling critical thinking behaviour*. He also presents practical suggestions on how to teach critical thinking for educational contexts and elaborates on the importance of the aspects of 'synthesis' and 'evaluative' levels in the teaching of critical thinking. Fleming (1995) has developed a programme known as *Creative Thinking Activities*. This programme suggested 'templates' for creative thinking activities which include; *brainstorming, synectics (analogies and*

metaphor), using an idea machine (using manipulative verbs), creative synthesis (visualization, backward mapping, child's eyes). He maintains, the RC questions and tasks that strengthen critical thinking can be divided into three types, namely; *questions that promote originality of ideas, questions to cultivate fluency with ideas (quantity), and questions to develop flexibility in handling ideas.*

In the United Kingdom, the emphasis on thinking in classroom teaching began to make an impact as early as 1969, seen in Brown and Wragg's (1993: 5) comment that, "During the past twenty years there has been a shift in understanding and valuing of the use of questions in classrooms. In Britain, this shift has been helped by the writings of Barnes (1969, 1976) and the various Government-commissioned reports: for example, the Cox Report (1989). The essence of the suggestions of these writings is that we need to consider the purposes of questions as well as the practice of questioning to encourage pupils to talk and think. Further, *Chapter 4* of the Bullock Report (1975) stresses the aim of developing students as thinkers. This highly influential report underlines the importance of inculcating thinking as a vital element to be practised during classroom reading activities. The report introduces some of the principal conclusions about the relations of language and thinking, and language and learning, arrived at by contemporary researchers. Further development in this area saw, in 1980, the publication of *Language Skills through the Secondary Curriculum* - A seminar series designed specially for professional studies courses in initial teacher education and training and as a resource material for in-service teacher training programme. This series emphasizes thinking as a classroom teaching practice and offers suggestions to read and discuss of issues raised and the investigations, research and experimentation which result. The suggestions, 'were not intended to limit thinking but rather to offer springboards' (Gatherer and Jeffs, 1980: 27). The authors stress that:

> *Language being the most efficient sign system man has ever been able to use, it would seem logical, therefore, to conclude that there is a necessary relationship between language and thought and that to*

improve your skills in the one will increase your efficiency in the other.

<div align="right">(ibid.,1980: 16)</div>

This emphasis on higher-order thinking, which stressed discussion of issues, opinion giving, application, analysis, synthesis and evaluation, was seen to be the major characteristic of all the reading activities that were presented throughout the compilation. In another significant development, a research paper submitted for the accreditation of teacher education in the UK, showed that 'higher order skills' was the most frequently mentioned responses (more than 40%) produced by 413 newly qualified teachers covering 181 ITT (initial teacher training) in the UK, in response to an open-ended question on developing and extending reading (Brooks et al., 1992: 31).

The roles of teachers' questions in cognitive processes

Many studies have shown that teachers' questions play a significant role in improving students' creative and critical thinking. These studies have given reading teachers additional information about classroom practices and have emphasized the need for change in teachers' behaviour to promote better comprehension skill instruction by improving questioning techniques.

Guszak (1967: 227), in analyzing teacher-pupil interaction, at primary level, found that seventy percent of the questions asked were of the literal comprehension type which asked for little more than the "trivial factual makeup of the story".

In similar study, Hostetler (1965) found that critical thinking questions asked by third grade reading teachers were only 1.8 percent of all the questions asked.

Guszak (1969), studied further the kinds of thinking skills sought by teacher questioning and the manner in which teachers related the various questions. He used a taxonomy with six thinking categories: *recognition, recall, translation, conjecture, explanation,* and *evaluation.* Results of the research placed 56.9 per cent of the questions in the recall category, 15.3 per cent in evaluation, and 13.5 percent in recognition.

Davis and Tinsley (1967) investigated the range of objectives in secondary school classrooms by analyzing the questions asked by student teachers and their pupils. The taxonomy utilized was based on the Bloom taxonomy, with additional categories of *affectivities* and *procedural*. They showed that both teachers and students asked more memory questions than all other questions combined, with most other questions being interpretation and translation types. Davis and Tinsley concluded by calling for a need for greater attention to classroom questioning techniques in both the pre-service and in-service education of teachers.

Bartolome (1968) in her Ph.D. research on the analysis of teachers' questions also found evidence that teacher questioning is not at a very high level of thinking. She analyzed a total of 7,476 questions asked by 6 elementary teachers in 108 reading lessons based upon six visits per teacher. Among Bartholome's findings were the following:

1. The majority of the questions asked by the primary reading teachers were memory questions (47%). The second frequently used category of questions was analysis questions (26%). Synthesis questions were only 9% and evaluation questions only 3% of the total.

2. The majority of the questions listed in for reading teachers guidebooks involved memory, analysis and synthesis.

3. There were significant differences between the categories of questions actually used by the primary reading teachers and those suggested in the guidebooks.

4. The majority of the objectives stated by the teachers belong to the analysis and application categories.

5. The categories of objectives stated by the teachers differed significantly with the categories of questions actually asked.

6. The majority of the objectives suggested in the guidebooks belong to the analysis, synthesis and application categories.

7. The categories of questions suggested in the guidebooks differed significantly with the categories of objectives suggested.

8. The categories of objectives stated by the teachers and those suggested in the guidebooks differed significantly in the following categories: memory, application and synthesis.

Other doctoral research on teachers' questions has been completed by Adams (1964), who also discovered a predominance of memory questions, and Floyd (1960), whose research again revealed high frequencies of memory type questions, as well as a poor balance of other types.

Perrott (1982) in looking at questions in Britain, has expressed concern over teachers' preferences for low-level, memory-type questions. She emphasized that 'the kinds of questions the teacher asks will reveal to the pupil the kind of thinking which is expected of them' (Perrott, 1982: 41).

In a similar tone, Morgan and Saxton (1991:3) suggest, "effective teaching depends primarily upon the teacher's skill in being able to ask questions which generate different kind of learning. They are aware that their questions do not draw on the wide learning possibilities inherent in the subject material and, at the same time, they recognize that their questions lack the sort of vitality that challenges students to approach their learning creatively". Morgan and Saxton (1991) explicitly pointed out that in considering the development of thinking skills, the Bloom taxonomy is one of the guiding principles that can be sought. They suggested that the taxonomy is important, not only in designing, but also in categorizing of questions.

Perrott (1982) suggested that in order to categorize a teacher's question one must determine the kind of thinking the pupil is expected to engage in to answer. Questions can be subdivided according to the level of cognitive thought required. Broadly, lower-order questions (LOQs) require the pupils to recall information. Higher-order questions (HOQs) require the pupil to manipulate information for some purpose.

In her consideration of the classification of questions, Perrott (1982: 42) also claims that the Bloom Taxonomy is 'One of the best-known classifications of educational objectives', and stresses that, teachers should be able to formulate questions on each of six levels in order to encourage pupils to employ a variety of cognitive processes (ibid, 1982).

Previous research on teacher questioning thus indicates that teacher questioning is usually at a low level of thinking, with most questions falling into the literal or memory level which asks for direct recall of facts. Bartolome's study, which compared the questions from the guide books for teaching reading and teachers' questions, indicated that there were significant differences between the questions actually asked by primary teachers and those recommended in the text books. Bartolome (1968) suggests that it is imperative for teachers to develop their skills in using teaching strategies that will induce higher-order thinking. This recommendation is feasible, according to the research findings of Perrott (1982); Morgan and Saxton (1991); Tiedt et al., (1989), which suggested that the quality of teacher questioning improves with training. Results of studies by Taba (1965) also indicated that attention to teacher questioning is vitally necessary in teacher education programmes.

Aware of the mass of research that teachers ask hundreds of questions every week (some requiring single word answers, others involving much more complex thought and understanding, yet many still to do with the lower-level recall questions) Brown and Wragg (1993: 3) point out that, "other cognitive, and cognate, reasons for asking questions are to stimulate recall, to deepen understanding, to develop imagination and to encourage problem solving".

In order to improve the teachers' skills in question asking, Brown and Wragg (1993) conducted a study in British primary schools. Part of the context was the need to prepare children for life in the twenty-first century which, they state, will require the highest quality of professional training. They gave the following reasons as to why teachers ask specific questions (ibid,1993:5):

i. to encourage thought, understanding of ideas, phenomena, procedures and values;

ii. to check understanding, knowledge and skills;

iii. to gain attention to task. To enable teacher to move towards teaching point in the hope of eliciting a specific and obscure point, as a warm up activity for pupils;

iv. to review, revise, recall, reinforce recently learnt points, reminder of earlier procedures;

v. to manage, to settle down, to stop calling out by pupils, to direct attention to teacher or text, to warn of precautions;

vi. to specifically teach whole class through pupil answers;

vii. to give everyone a chance to answer;

viii. to ask bright pupils to encourage others;

ix. to draw in shyer pupils;

x. to probe children's knowledge after critical answers, redirect questions to pupils who asked or to other pupils;

xi. to allow expressions of feelings, views and empathy;

xii. unclassifiable, unreadable, incoherent.

(ibid., 1993: 5)

This classification draws on a study carried out by Brown and Edmonson (1984) on forty teachers in English secondary schools. It is based on the teachers' responses to the question "Why am I asking this specific question of this pupil?". In fact, this is not a set of mutually exclusive categories, as claimed by the authors. The most common reasons for asking questions were: *encouraging thought, checking understanding, gaining attention, revision* and *management* (Brown and Wragg, 1993).

The teachers' reasons for asking questions outlined by Brown and Wragg (1993) can be categorized according to the levels of thought processes of the Bloom taxonomy. They can be divided into two major categories i.e. knowledge/literal and inferences. For instance, encouraging thought, understanding of ideas, phenomena, procedures and values categorized under inferences and affectives.

The reasons for asking questions outlined by Turney et al., (1983, as quoted in Brown and Wragg, 1993: 4) are more aligned to the idea of different levels of thought processes. They include the *affective* domains as suggested by the Cogaff taxonomy. Their reasons are:

a. To arouse interest and curiosity concerning a topic.

b. To focus attention on a particular issue or concept.

c. To develop an active approach to learning.

d. To stimulate pupils to ask questions of themselves and others.

e. To structure a task in such a way that learning will be maximized.

f. To diagnose specific difficulties inhibiting pupil learning.

g. To communicate to the group that involvement in the lesson is expected, and that overt participation by all members of the group is valued.

h. To provide an opportunity for pupils to assimilate and reflect upon information.

i. To involve pupils in using an inferred cognitive operation on the assumption that this will assist in developing thinking skills.

j. To develop reflection and comment by pupils on the responses of other members of the group, both pupils and teachers.

k. To afford an opportunity for pupils to learn vicariously through discussion.

l. To express a genuine interest in the ideas and feelings of the pupil.

Turney et al. (ibid.) had stressed the importance of both cognitive and affective domains in the reasons for asking questions by teachers. Teachers claimed: *to involve pupils in using an inferred cognitive operation on the assumption that this will assist in developing thinking; to develop reflection and comments by pupils on the responses of other members of the group, both pupils and teachers;* and *to express a genuine interest in the ideas and feelings of the pupil.* Turney et al. included some metacognitive aspects in their list: *to develop an active approach to learning; to stimulate pupils to ask questions of themselves and others; to structure a task in such a way that learning will be maximized,* and so forth. Arguably reading comprehension lessons are a major platform to ask these questions and to realize all those functions which include the higher cognitive domains, affective and metacognitives. There are several reasons why reading comprehension lessons are especially useful to develop questions: pupils expect and are accustomed to questions on such texts; teachers expect to ask questions and unlike some other lessons, ESL/EFL teachers nearly always prepare a range of questions on a text (usually a text book also contains a range of questions as well). Questioning is thus understood by all participants to be embedded in reading

comprehension activities. Yet as indicated above, there is a generally recognized need to improve the range and use of teachers' questions in order to develop critical thinking. At least, researchers have stressed such a need (Kissock and Iyortsuun, 1982; Perrott, 1982; Morgan and Saxton,1991; Tiedt et al., 1989; among others).

There have been many suggestions about the use of Reading Comprehension lessons, especially through questions and tasks, as a means of inculcating higher-order or divergent thinking and moral values in substantial literature on such issues (Perrott, 1982; Irwin, 1991; Tiedt et al., 1989; Cairney, 1990; Barrett, 1972 and others). Barrett (1972: 123) suggests that;

> *Questions are of great importance in developing a reader's comprehension. Through questioning, a teacher can reinforce, point out essentials and cause students to think and relate their knowledge to reading material. It is important that questioning be at a high level, however, and that students can ask additional questions as they answer those the teacher has asked.*

Some studies show that teachers need to be trained in order to become effective in the use of questions. In relation to the QUILT programme, it was pointed out, "After one year of participation, teachers significantly increased their knowledge and understanding of effective questioning practices, and significantly increase their use of discrete questioning behaviours in classroom setting. Students responded significantly more often at higher cognitive levels" (Orletsky, 1991: 1).

There have also been widespread suggestions for training by using questioning taxonomies, especially the *Taxonomy of Educational Objectives* by Bloom et al. (1956), as a tool of constructing higher-order or divergent thinking via question and task design (Barrett, 1979; Sanders; 1968, Perrott, 1982, Kissock and Iyortsuun, 1982, Irwin, 1991; Tiedt et al., 1989; the CDC, 1992; and others).

Irwin (1991: 180) points out that;

> *To improve teacher-made questions, several questioning taxonomies have been designed. ... These taxonomies are useful for helping*

teachers to ask various types of questions. The categories listed in these taxonomies include such things as literal recognition or recall, inference, evaluation and appreciation as in Barrett's (1979) and memory, translation, interpretation, application, analysis, and evaluation as in Sanders' (1968).

The use of Bloom's *Taxonomy* of educational objectives to develop students' creativity, thinking and intellectual skills has been clearly stipulated by the Ministry of Education, Malaysia as stressed by its Curriculum Development Center (CDC) in the booklet, *'Practical References for KBSM, The National Education Philosophy'* (1992: 39). This booklet, originally known as *'Pukal Latihan KBSM, Falsafah Pendidikan Negara'* (1992), suggested that the Ministry should review the use of the Bloom Taxonomy (1956) in order to train students to think creatively or divergently.

This present study addresses issues related to thought or comprehension processes underlying Reading Comprehension Questions (RCQs) and Reading Comprehension Tasks (RCTs) used during reading instruction and their implications for teacher training. Based on the RCQs and RCTs designed by the subjects of the study (pre-service, in-service and trained teachers), this study examines the subjects' preferences for low-order and convergent questions rather than the higher-order, divergent ones used during reading comprehension lessons despite the Ministry's vigorous and constant reminder of the importance of the latter. Apart from addressing the RC questions by means of using the Cogaff Taxonomy, the study also looks into the possibility of using the taxonomy in designing RC tasks as well (this is detailed in Chapter Four).

2.2.1 Comprehension and thinking

Comprehension and thinking are two inseparable elements in cognitive processes. One of the earliest studies which related reading and intellectual development (Thorndike, 1917) investigated students' mistakes in paragraph reading, indicating that incorrect interpretations may be the result of (1) wrong connections with single words, (2) the over-potency or under-potency of elements,

or (3) failure to treat the concepts produced by reading as provisional. Reading according to Thorndike is reasoning and understanding a paragraph.

Guilford (1959) investigated the capability of an individual to perform some 120 different intellectual abilities, with each ability having unique properties relating to intellectual operations, products, and contents. Significantly, Guilford related the operations of intellect to reading comprehension development. To comprehend and cognize, the individual must engage in the intellectual operations of divergent production, convergent production, and evaluation. This is where questions and tasks play significant roles.

This 'structure of intellect' model suggested, as did Thorndike, that reading and thinking abilities are integrally related and that any attempt by the teacher to develop comprehension skills must entail exercises and provisions for promoting growth in Guilford's five operation steps (see table1.2.1(a) in Chapter One for details).

Several authorities who have attempted to emphasize cognitive and intellectual processes in their writings, but who have not advocated full theories of intellectual development, have conducted interesting and varied research. Taba, (1960) called for 'teaching to be addressed to the objective of thinking' as a foremost consideration in improving instruction. Taba's research revealed information concerning the nature and levels of concept development, the art of questioning, the role of the teacher in the questioning process, and strategies for instructional change. Her research, is of great importance for reading in linking the significance of asking proper kinds of questions during a discussion to types of process thinking desired.

Bruner's (1966) writings have also been indirectly responsible for relating comprehension and thinking. Bruner indicated that stimulating thought in the setting of the school is one of the great problems of education. Citing research which indicates that the thinking individual perceives problems as not being controlled by random forces, but rather being situations which can be solved, Bruner proposes that problem identification and problem solving must be permitted

in every area of the curriculum. The teacher must be aware of the importance of enhancing the thinking abilities of children, Bruner concludes, by the designing of 'exercise in conjecture, in ways of inquiry, in problem finding'.

The role of questions in developing students' thinking processes, especially in the teaching of reading comprehension, is undeniably important and has been repeatedly reemphasized. As has been empirically demonstrated, one of the commonest ways to teach comprehension has been to ask questions (Barrett, 1972; Sanders, 1968; Irwin, 1991). Questions are defined in this chapter rather broadly and parallel to Sanders' (1968: 2) definition as 'any intellectual exercise calling for a response; this would include both "problems and projects" as well as questions'. While tasks are defined as 'workplans ... from the simple and brief exercise type to more complex and lengthy activities such as group problem-solving or simulations and decision-making' (Breen, 1987: 23).

As RCQs and RCTs are considered a vital aspect in developing students' comprehension processes, it seems the teachers' use of divergent questions and tasks in developing students thinking can be further explored through research on cognitive processes. Given the importance attached to the intellectual aspects of schooling, one might expect that research on cognitive processes in the classroom would be at least as prominent as research on social-emotional characteristics.

2.2.2 The Domain of Cognitive Processes

A consideration of well-known models of thinking that have been proposed gives a wider perspective on studies carried out within the domain of cognitive processes. The recent emphasis in education on teaching thinking skills has led philosophers, psychologists, and curriculum experts to create what amounts to a warehouse full of thinking models, taxonomies, frameworks for higher-order thinking skills, and theories for teaching thinking. And yet Bloom's taxonomy, (Bloom et al.,1956), continues to be the most widely used method for classifying thinking skills (Tiedt et al., 1989).

Ennis (1985), argues that Bloom's taxonomy is too vague and does not include criteria for judging the outcome of an activity. He does admit, however, that the taxonomy serves as a reminder that there is much more that schools should be doing other than simply fostering memorization. Ennis (1985) prefers the term *critical thinking* to *higher-order* thinking skills such as those outlined by Bloom. He defines critical thinking as "... reflective and reasonable thinking that is focused on deciding what to believe or do" (ibid., 1985:45). Ennis' work on skill clusters (1985) includes clarifying issues and terms, identifying components of arguments, judging the credibility of evidence, using inductive and deductive reasoning, handling argument fallacies, and making value judgments.

The Ministry of Education, Malaysia, prefers the term '*creative thinking*' in describing higher-order thinking (CDC, Malaysia, 1992). After examining these definitions, the present study adopts the stance that the term '*higher-order thinking* or *divergent thinking*' as defined by Bloom et al., (1956) and '*critical thinking*' as used by Ennis (1985) and '*creative thinking*' as referred to by the CDC. (1992) can be used interchangeably.

As indicated, there is a long standing emphasis by the Ministry Education, Malaysia towards encouraging higher-order, or critical, or creative thinking among students via classroom instructions. This has been reinforced with the implementation of the KBSM in 1988. The use of Bloom's Taxonomy to develop students' creativity, thinking and intellectual skills has been clearly stipulated by the Ministry in its booklet, 'Practical References for KBSM, The National Education Philosophy' (1992: 39) which states;

> ...*in conjunction with this, it is essential to review the use of Bloom's Taxonomy of Educational Objectives within the cognitive domain. Bloom has analyzed and suggested that the intellectual skills or cognitive domains can be analyzed in the following manner:*
>
> a. *Knowledge;*
>
> b. *Comprehension;*
>
> c. *Application;*
>
> d. *Analysis;*

e. Synthesis;

f. Evaluative.

The booklet gives a detailed elaboration of each level of thought process of the Bloom's Taxonomy and how it can be applied in classroom instruction. The details of the Ministry's report concerning the above statement are important for the present study because they are part of the official context which has emphasized reading development and critical thinking. Further, they may have been part of the teacher training context which informs teacher educators for pre- and in-service training.

2.3 KBSM emphasis on creative and critical (divergent) thinking

The Malaysian education system as outlined by the national curriculum (KBSM, detailed in Chapter Two) has a broad philosophy which serves as a guide for every teacher and curriculum subscriber. It is important for all teachers to be well aware of the philosophy and ideas associated with it so that their practice can be guided to become effective instruments in achieving the national ideals as envisioned by the philosophy. Chitravelu et al.(1995), restating the emphases of the KBSM, summarize that, "It is essential that teachers take into consideration the emphases of the New Integrated Secondary School Curriculum (KBSM) when planning the contents of their teaching programme. These emphases are:

a Knowledge

Through exposure to various activities and materials, students are provided with the impetus to seek further knowledge on their own accord which is to continue throughout their life time.

b Thinking abilities

It is essential that opportunities be provided to sharpen students' thinking abilities in order that they be able to think clearly, objectively, rationally and creatively, as well as have an open mind and be able to make sound judgments.

c Moral and ethical values

The introduction of moral and ethical values in the curriculum is geared towards developing humane and morally upright persons, who seek not only to know

themselves better but also be able to contribute to the betterment and harmony of the society and the nation.

d Reading habit

In order to inculcate the reading habit among students, exercises and assignments given and materials used should encourage students to read further and undertake reference work.

(Chitravelu et al.,1995: 13)

In line with this emphasis, the Ministry of Education has outlined some important principles to be considered in the English Language Programme under various sub-topics such as *level of difficulty, gradation of difficulty, suitability to students, balance, variety, literary element, teaching vs. testing and intellectual development.* On *intellectual development,* it is emphasized;

> *In providing opportunities to sharpen students' thinking, it is important that activities and exercises presented in the classroom be meaningful, challenging and thought-provoking. Similarly, and more importantly questions asked should be challenging and thought-provoking. They should include higher-order divergent questions apart from the convergent kind.* (Chitravelu, *et al.*, 1995: 14)

There is, then, a clear stress on divergent questions and tasks in order to activate higher-order thinking operation to take place. It has been emphasized in many parts of the KBSM specifications that those aspects should be made the focus of teaching and activities across the curriculum.

2.3.1 Suggestions on the Methodology of Teaching and Learning Towards Enhancing the Intellectual Skills (Ministry of Education, Malaysia, 1992: 37)

Introduction

The KBSM is implemented in the effort towards fulfilling and achieving the objectives of education aspired to by the nation. The curriculum was planned and programmed based on the National Philosophy of Education which stipulates that;

Education in Malaysia is an ongoing effort towards further developing the potential of individuals in a holistic and integrated manner so as to produce individuals who are intellectually, spiritually, emotionally and physically balanced and harmonious, based on a firm belief in and devotion to God. Such an effort is designed to produce Malaysian citizens who are knowledgeable and competent, who possesses high moral standards, and who are responsible and capable of achieving a high level personal well-being as well as being able to contribute to the betterment of the family, the society and the nation at large. (Ministry of Education, 1987)

The KBSM, therefore, emphasizes the improvement of education and knowledge, inculcation of good moral values and technical skills which center on the overall and integrated personal development in the effort to produce ethical citizens. Personal development covers the aspects of improving the students' talents and creativity and students' potential in the intellectual, social, emotional and physical aspects at the optimum level. The enhancement of students' creativity and talents is not intended to be carried out in isolation but in an integrated manner.

One of the major emphases of the new curriculum is the inculcation of sound moral values across the curriculum. This is emphasized in the KBSM curriculum because the Ministry of Education believes that these domains were not previously given due consideration by the system of education. The Ministry claimed that the process of teaching and learning exercised within the old curriculum focused only towards the lower levels of cognitive development (ibid.,1992).

The Ministry of Education states that the claims made in some quarters that the previous curriculum had over-emphasized the affective domains were misleading and unacceptable (Ministry of Education, CDC, 1992). The system of education had evidently not produced the desired emphasis on the higher-cognitive domains. By 1990, it was discovered that teachers' questions and tasks were still very much characterized by the lower-order recall or convergent types (ibid., 1992). It seems teachers were more comfortable in using the lower levels (convergent) of the cognitive domains; the higher-levels which strive for higher-

order divergent thinking were neglected. "It is therefore important for the new curriculum (KBSM) to assure that the higher-order cognitive domains are activated so that children's thinking development is enhanced in line with what is being proposed by one of the emphases of the curriculum" (*Pukal Latihan* KBSM, 1992: 38).

With the implementation of the KBSM, the Ministry hopes that students' intellectual development will be improved so that the previously less balanced development is rectified. This can only be realized if the required skills are regularly practised by teachers during classroom instruction.

The teaching effectiveness in classrooms is mainly dependent on the teaching methodology adopted by teachers. The Ministry further outlines how intellectual development can be improved. The summary is presented as follows:

Intellectual development

In the elaboration of the National Philosophy of Education, the intellectual element is defined as:

a. *having acquired basic skills, e.g. reading, writing and simple calculating;*

b. *continuously striving towards getting, improving and disseminating knowledge;*

c. *continuously think logically and critically and strive towards improving one's creativity so that one is able to explain, analyze, synthesize, infer, conclude and generate intelligent ideas; creativity so that one is able to explain, analyze, synthesize, infer, conclude and generate intelligent ideas;*

d. *to be able to use knowledge for the betterment of oneself, others and society.*
                                        (Pukal Latihan KBSM, 1992: 38-39)

The emphasis on higher-order thinking skills in (c) seems to go hand in hand with the emphasis in Bloom et al. (1956). The Ministry goes further, however, to give this emphasis a moral tone and a goal of attaining wisdom, 'Within the KBSM, the aspect on intellectual development is considered as virtuous, i.e. knowledge that will lead one to embrace truth: logical thinking, analytical, creative and innovative; and knowledge which brings wisdom' (*Pukal Latihan* KBSM, 1992: 39)

In the effort to realize this, the Ministry through the implementation of the KBSM, has strongly stressed the use of Bloom's Taxonomy by teachers in their classroom practice, "Consequently, it is necessary to review Bloom's Taxonomy with regards to the use of cognitive domains. Bloom has successfully analyzed and enhanced intellectual ability as follows..." (the six domains of the taxonomy from *literal* to *evaluation* were stipulated) (*Pukal Latihan* KBSM, 1992: 39).

The Ministry's booklet elaborates and explains each different level of the cognitive domain of the Bloom's Taxonomy and shows how each one can be put into practice. The Ministry's emphasis on using Bloom's taxonomy in classroom instruction gives an added impetus and a rationale for this study to be undertaken within the context of reading comprehension lessons in Malaysia.

2.4 Development of Critical and Creative Thinking in Malaysian Schools

Given so much emphasis on critical and divergent thinking skills in the KBSM, a number of relevant concepts, models and teaching and learning strategies of the skills have been applied in accordance to the demands of the syllabus. The most popular ones currently being practised are the KBKK programme and CoRT thinking lessons introduced by de Bono (1970, 1973, 1996). The KBKK are Malay initials for *Kemahiran Berfikir secara Kritis dan Kreatif*, which is literally translated as the Critical and Creative Thinking Skills. It was introduced to boost the effectiveness of the thinking skills programme. The KBKK makes use of a number of thinking models such as The Swartz and Parks' Model (1993), the KWHL Model (1992), the de Bono's CoRT 1 and CoRT 4 Models (1996).

2.4.1 An overview of the development of critical and creative thinking among Malaysian school students.

The importance of creative/critical thinking in academic achievement and its effects on personal and social development seem indisputable. According to Seng (1990: 25), "for more than three decades, research findings had strongly indicated that the potential of having creative and critical thinking is always present in an

individual and this potentiality can be highlighted and enhanced through the manipulation of the right strategies".

Teachers need to be more aware of their responsibility to sharpen children's creative and critical thinking. They should always be on the search for possibilities of how those skills can be enhanced. Awareness of such statements has driven many academics and those involved in the teaching profession to research areas related to creativity and critical thinking. Research findings focused on this interest have contributed towards deepening educators' perceptions and widening their understanding on creative and critical thinking and raised awareness of the factors that might hamper its progress and development. Seng stresses that a general feeling among academics that, "...an in-depth and concise study should be encouraged and carried on a wider scale before this dogma can be proclaimed and generally accepted" (ibid, 1990: 25)).

Seng (1990) further states that creative and critical thinking is generally accepted as a personal asset that should be enriched through education. The author draws attention to the tendency of the present system of education to undermine their importance. Academics and curriculum planners have seemed more concerned to produce excellent students whose achievements were based on their examination grades. The current system of examinations still focuses mainly on students' ability to produce answers expected by the examiners and curriculum planners. Students' ability to engage in their own creativity and critical thinking in dealing with academic questions has rarely been given emphasis and has had little bearing on their academic achievement. The system of examining students' potential using the current system of examination is apparently mainly based on students' ability *to recall* rather than *to infer.*

Yet over the last three decades, progress made in education has encouraged researchers like Torrance (1964) and Jones (1972) to propose that students would prefer to seek knowledge through methods that encouraged *creativity* as in, for example, the *inquiry method* of teaching and learning. This has led to many

researchers to search for an appropriate methodology that emphasizes creativity. Torrance (1974), for instance, holds that the instruction that emphasizes creativity and critical thinking would be in line with the inherent characteristics of human nature which, he claims, include: inquisitive minds, ability to face challenge and to perform challenging tasks, the ability to concentrate and infer while performing a task and to assert his/her own individuality or existence. He suggests that in order to fulfill student's needs to be creative and critical, the teacher has to acknowledge and be aware of the students' potential. Only through such awareness and recognition by the teacher, can the students' potential to be creative and critical thinkers be enhanced (Seng,1990). Torrance (1965: 11), in stressing the importance of creative and critical thinking for the future development of a country, acknowledges that;

> *Having researched on human behaviours of both children and adults, it seems more certain that there are no other better ways of improving the living standards of the people of our nation except through the methods that can enhance the levels of their creative and critical thinking. It is indisputable that, if the human's tendency to be creative and critical is being carelessly and extensively suppressed, it will adversely affect the satisfaction and contentment in a human's life.*

The fact that there have been many research studies carried out which confirm that it is not only possible to improve creativity or critical thinking but that they should be improved (Seng, 1990). Children can be trained or taught to think creatively or critically in order to understand and master any subject matter although it is transmitted in a traditional method (Torrance, 1965). This stresses the fact that students' ability to think creatively or critically can take place in any class and teaching situation, providing the teacher emphasises this. Guilford (1967: 41) in recommending that higher-order thinking skills like creative and critical thinking can be enhanced in schools, states that;

Education can help an individual to attain "self-actualization" to the maximum, regardless of his initial level of attainment. Many might possess the quality to be creative or critical, yet such qualities fail to shine to their advantage as a result of non-permissive surroundings or circumstances. As a result, these people will never be truly successful. Education (schools) can become the catalyst that can prevent such surpression from happening.*

In looking at a similar issue from the Malaysian perspective, the system of education has not generally given much emphasis towards enhancing the students' creativity or critical thinking. Seng (1990) came to this conclusion this after looking at primary, secondary, and university levels of education. The end of each level is marked by an examination which, he says, assesses only the academic achievement of a student. Those who fail to make the required grade will be out of the system and cannot pursue further studies. A student's ability gain admission to the university will depend on his academic attainment achieved in the examinations held at the end of each level. The system emphasizes examination results as the only criteria of assessment of a student's potential. Other qualities like creativity and critical thinking have been neglected and unassessed (ibid., 1990).

In an effort to improve the standards of education in Malaysia, the government has introduced the new curriculum, known as KBSR (for primary) and KBSM (for secondary schools). Despite much effort geared towards modernizing the teaching methodology in classrooms to meet the demands and principles of the new curriculum, the teachers/schools are mainly still inclined to produce students who are somewhat narrow in their academic excellence; their concept of excellence is predominantly factual-based. Other qualities such as *creativity* and more *critical thinking* may well be undermined as a result of teachers' over-

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* Self-Actualization theory introduced by Maslow (1959) which relates to a latent characteristic ability possessed by an individual that can be enhanced, if the right technique is applied.

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zealousness towards a factual-based assessment of academic achievement. Malaysian researchers like Leong (1983) and Jasbir and Mukhejee (1983) report that almost all the important aspects of teaching and learning in schools and at home were motivated by the perceived overriding need to see the students pass the examinations with good results.

2.4.2 Suggestions on how teachers could develop student's critical and creative thinking

This section suggests a few ways for teachers to develop students' critical and creative thinking. There is ample evidence to verify the role of education in developing students' creative and critical thinking (see Ennis, 1985; Beyer, 1987; Tiedt, 1989; KBSM, CDC, 1992; de Bono, 1970, 1976, 1996). Teachers, in particular, can take a central role in shouldering the responsibility to develop such creativity.

A major consideration put forward by Seng (1990) in suggesting how teachers could help to develop children's creativity and critical thinking was: 'teachers should ask inferential and divergent questions'. While the KBSM syllabus in its propagation of how intellectual development can be enhanced stipulated that;

> *In education, children do not only receive knowledge but they are expected to put forward ideas, thoughts and opinions which are relevant, objective, creative, rational in all situations. The development of children's intellectualism is therefore very important apart from their academic progress. In order to achieve this aim, the opportunities for intellectual development should be created so that critical and analytical thinking will become one of the major aspects in each classroom activity. This aim can be achieved through the following:*
>
> > *a. Create situations which enable students to be competent in analyzing issues and problems, to think rationally and critically,*
> >
> > *b. Individual or group research training on data collection followed by the ability to analyze and synthesize.*
> >
> > *c. Individual or group enquiry for hypothesis testing and problem solving,*
> >
> > *d. Simulation activity for the purpose of immersion exercise to encourage inferencing, analyzing and decision making, and*
> >
> > *e. Ingenious questioning - **divergent questions are encouraged***
>
> (Pukal Latihan KBSM, 1992: 184-85, author's emphasis)

Such emphasis on the noble aims towards developing student's critical thinking have been repeatedly stressed in many parts of the KBSM syllabus with suggestions on how the aims could be achieved. Interpretations of how the tasks should be translated into classroom activities are left to each teacher. To familiarize teachers with the concepts of the new syllabus and its classroom demands, the Ministry of Education has organized numerous in-service courses throughout Malaysia. Yet, many teachers still feel inadequate or under-prepared to translate the demands of the new syllabus into classroom practice in carrying out their professional duties. Khatijah Abd. Hamid (1990: 23) in her article based on the National Conference on the Assessment of KBSR[*] related to problems and challenges facing the new syllabus had to admit that;

> *We are capable of introducing an ideal curriculum like KBSR, but to change the attitudes of those involved in its implementation is not an easy matter. We might succeed in solving and handling of our professional issues, yet we might not succeed, at the same time, to change the human labour force especially in areas related to attitudes and its readiness to accept and implement something like educational reformation that we have planned and wished to implement as envisioned by the KBSR.*

Teachers' (referred to as the labour force) skeptical attitudes to implement the demands of the syllabus may well be the result of certain deficiencies in their perception of the syllabus. Many might feel threatened and unsure as to how to carry out classroom activities as expected, for in many cases, teachers have to rely on their own personal interpretation of what is required by the syllabus. What is needed is a pragmatic and practical strategy of how classroom lessons can be carried out systematically. As far as Reading Comprehension lessons are concerned, the present research intends to develop the use of the Cogaff Taxonomy concerning question and task design according to different levels of

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[*] KBSR (stands for the New Curriculum for the Primary Schools) which was first implemented in the Malaysian Primary schools in 1983. It is equivalent to the KBSM.

thought processes. This should encourage students to analyze, synthesize, evaluate and infer.

2.5 Theoretical Framework

Introduction

A theoretical framework outlines the theory or construct a study is based on. A research construct, on the other hand, outlines the actual process that takes place in the study conducted which is based on the theory as outlined in the theoretical framework. As *learning* and *thinking* were the two major constructs of the study, two major frameworks related to learning and thinking were adopted in this study. While the first describes the manner of how learning takes place among the subjects, the second describes what kind of learning that has been emphasized. The **Learning Process** theory by Reid (1994) was adopted in describing the **learning process** while three **models of thinking** namely; the **Swartz and Parks' Model** (1993) and the **CDC Model of Thinking** (1993) were adopted underpinning how **thinking skills** can be inculcated within the learning process that takes place. The CDC Model of thinking was designed by the Curriculum Development Center, Ministry of Education, Malaysia. The conception of the CDC Model follows the Malaysian government's intention in considering issues related to critical thinking. Other models of thinking such as CoRT 1 and CoRT 4 (1982) introduced by de Bono are currently being implemented in some Malaysian secondary schools. The CoRT models are not considered as one of the thinking models in this study since the CoRT Models deal specifically with problem solving which is product-based (output) rather than process-based (input). The Cogaff taxonomy, in line with the earlier two models, is process-based and can be used by teachers to encourage students to use higher-order thinking skills.

The Theoretical Framework

The theoretical framework adopted in this study is based on two major concepts; i.e. **learning** and **thinking** which frame the construct of the research framework. The study adopts the **Process of Learning** model formulated by Reid, (1994) which was based on the models of learning suggested by Bloom's `Model of School Learning' (1976)** in describing the learning process that took place within the construct. Two models of thinking; namely, **The Swartz and Parks Model of Thinking** (1993) and **The CDC Model of Thinking** (1993) were adopted. They show how thinking is defined and how it can be inculcated in order to encourage students to think creatively and critically in line with the idea behind the Cogaff Taxonomy (adapted from Bloom and Krathwohl's work). Bloom et al., (1956) and Krathwohl et al.,(1964) originally provided a widely disseminated framework that encompasses student learning within the cognitive and affective domains and asserted that learning outcomes are influenced by the quality of instruction.

The `process of learning' as outlined by Reid (1994) suggests that there are three principal elements in learning: the input, the cognition and the output. The **input**, according to Reid, can be absorbed in various forms, for example: by hearing or speaking; seeing events, print or illustrations; writing or experiencing through whole-body activities. The **cognition** is when the material undergoes some form of change as the learner attempts to make sense of it; and the **output** is where the level of understanding which the learner has achieved with the new material is indicated. The learning theory is diagrammatically presented as follows:

Figure 2.5.1(a): The Process of Learning
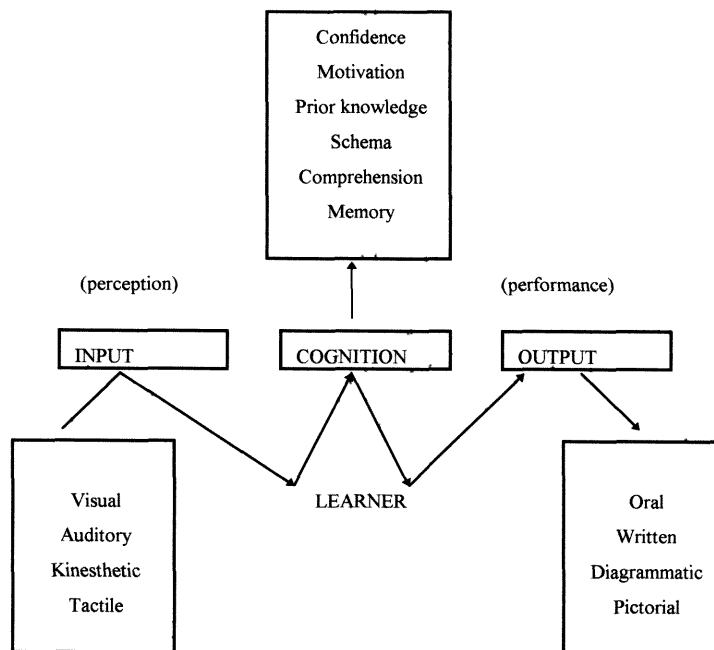
Source: The Process of Learning., Reid. G. (1994)

Figure 2.5.1(b): The Conceptual framework
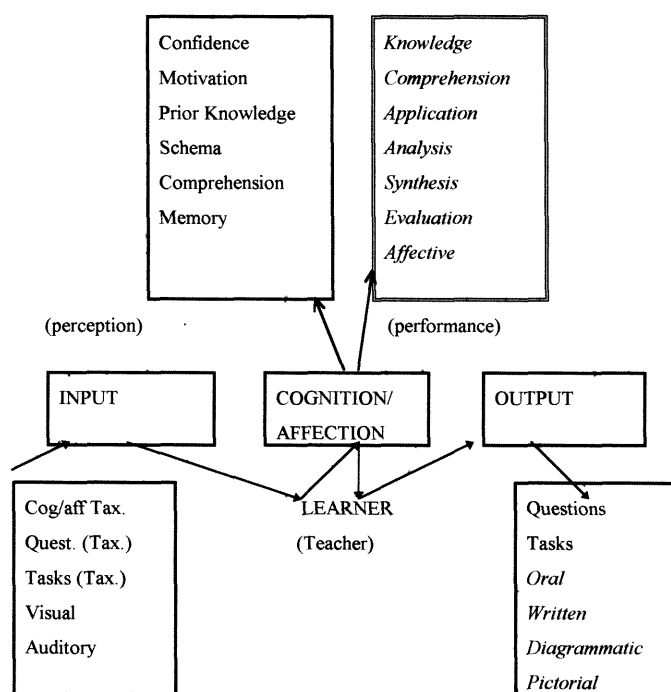
The **Conceptual framework**: Adapted from the Process of Learning (Reid, 1994): The double box shows the addition of categories from the Cogaff Taxonomy

2.5.1 *The Conceptual Framework*

Based on the theoretical framework outlined by Reid (1994), the conceptual framework as postulated in this study was designed as shown in figure 3.5.1(b) The **input** refers to the knowledge on how reading comprehension questions and tasks can be formulated using the Cogaff Taxonomy to produce a body of questions/tasks that are characterized by both literal and inferential levels/kinds of comprehension processes. The elements such as '*confidence*', '*motivation*', '*prior knowledge*', '*schema*', '*comprehension*', and '*memory*', as outlined by Reid, are contributary to the whole learning process that takes place. The input, related to *literal* and *inferential* construction of RCQs and RCTs which are characterized by all domains of thought processes (e.g. *knowledge, comprehension, application, analysis, evaluation* and *affective*), was received by the learners through workshops organized by the researcher during the intervention stage by means of visual and auditory presentation. The knowledge of the subject matter, and how it is utilized to formulate the desired questions and tasks, was emphasized.

The *cognition* box (in Figure 3.1.5b) refers to the state when the learners begin to make sense of the input received and try to practise it during the post-intervention stage. Relevant materials such as reading passages, the Cogaff Taxonomy and examples of how they are being utilized to construct the questions and tasks based on the passages are displayed by auditory and visual means. The subjects are allowed to ask questions and offered suggestions during the presentation.

The *output* refers to the products in the forms of reading comprehension questions and tasks formulated by the learners during the post-intervention stage. The tasks, as long as they are varied in levels and types according to the different levels or domains of comprehension, could be presented in the forms of oral or written. They could be elaborated using diagrams or pictures. In Figure 3.1.5(b) - the double box containing *knowledge, comprehension, analysis, synthesis, evaluative* and *affective* have been added by the present author to integrate the conceptual framework with the Bloom taxonomy. The "questions" and "tasks" have been added to Reid's original model because the output in the present research is in the forms of questions and tasks.

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2.5.2 Models of Thinking

The models of thinking adopted in this study comprised of The Swartz and Parks' model (1993), and The CDC Model (1993). These models were chosen as the thinking models to underlie the present study because of their compatibility in terms of how the concept or domain of thinking is applied in categorizing information/ideas or knowledge with the Cogaff taxonomy.

2.5.2(a) The Swartz and Parks Model (1993)

This model which classifies the thinking skills into three main categories is summarized:

1. Thinking in order to understand and explain:

This category of thinking aims at gaining understanding and recalling ideas which involve the skills of clarifying/explaining the ideas via:

i. The analysis of idea which constitutes the skills:

☐ To compare and contrast

☐ To classify and translate

☐ To establish relationship of ideas between the parts and whole

☐ To arrange the ideas in a proper order

ii. The analysis of arguments which constitutes the skills:

☐ To determine causes and conclusions

☐ To state assumptions

2. Creative thinking

Its objectives are to get new results which involve the skills of generating ideas in the following manner:

i. to generate possible alternatives from;

☐ many sources of ideas

☐ many different ideas

☐ new ideas

☐ meticulous ideas

ii. Combination of ideas

  ☐ by using analogies and metaphors

3. Critical Thinking

This category aims at making critical assessment of ideas which involves the following skills:

i. Assessment of basic information through accurate observation from reliable sources.

ii. Assessment of inferences by the process of induction based on facts. This is carried out via:

  ☐ Explaining cause and effect relationships/ or making predictions

  ☐ Stating inference by using analogies

  ☐ Making generalizations

iii. Assessment of inferences by the process of deduction.

  ☐ Stating inferences by using the pre-requisites/ categories of information.

All the three categories are inter-related with one another which are used for:

1. Decision making:

It aims at making the best decision by using the strategies such as by: generating options, predicting the outcome of an option in order to choose the best one. The skills involved include, the process of generating, clarifying and assessing ideas.

2. Problem solving:

Its objective is to obtain the best solution to a problem by using such strategies as: generating all possible ways of solving problems; predicting the outcomes and choosing the best solution. The skills involved include the processes of generating, clarifying and assessing information.

2.5.2(a)i *Compatibility of Concepts On Thinking Between the Swartz and Parks'*
Model and the Cogaff taxonomy

The Thinking Model introduced by Swartz and Parks (1993) which categorizes thinking skills into three major components namely; *thinking in order to understand and explain, creative thinking* and *critical thinking* propagates how ideas or information can be categorized into different categories (cognitive and affective domains) based on types or levels of thought processes of such ideas or information. This is congruent with the manner in which information and knowledge are categorized by Bloom and Krathwohl into different cognitive/affective domains. They may not be mutually exclusive in terms of sequence of levels of thought, though. For instance, the *analysis of ideas* by means of *comparing* and *contrasting* suggested by the Swartz and Parks' Model is in line with the *comprehension* (lower-order) level of thought process in Bloom's model (and with the Cogaff taxonomy). Likewise, *to classify and translate; to establish relationship of ideas;* and *to arrange the ideas in a proper order* mentioned in the former, either belong to the *knowledge* or *comprehension* levels of the latter. The concepts of thinking '*to determine causes and conclusion*' as well as '*to state assumption*' in the former are parallel to the '*synthesis*' level of the latter.

The second category of thinking labeled ***creative thinking*** by Swartz and Parks aims at getting new results by generating possible alternatives from: *many sources of ideas, many different ideas, new ideas,* and *meticulous ideas.* This process is congruent with the *analysis* process outlined in the Cogaff taxonomy. In order to get the best alternative from many different sources of ideas, the *analysis* process has to be employed in order to select/produce an outcome (the best alternative). In a situation where there is a combination of ideas, Swartz and Parks (1993) suggested the use of analogies and metaphors in trying to get new results. In the Cogaff taxonomy, this skill refers to the ability to 'apply' (*application*) the existing knowledge that relates to analogies and metaphors. *Analysis* may only be engaged in making the choice between analogies and metaphors.

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Critical thinking is referred to by Swartz and Parks (1993) as the assessment of: *basic information, inferences by induction,* and *inferences by deduction.* The Cogaff taxonomy uses the term **evaluative** for a similar function. The *evaluative* concept is therefore inherent in all the sub-categories of critical thinking proposed by the former. The existence of the affective domain, although it may not be explicitly displayed, cannot be denied. Bloom et al., (1956) and Krathwohl et al., (1964) pointed out that in the process of making judgments (evaluation), the affective domain may also be engaged.

To conclude, the levels of thought processes or cognitive/affective domains outlined in the Cogaff taxonomy (i.e. *knowledge/literal, comprehension, application, analysis, synthesis, evaluative, affective*) can be compared within the three categories of thinking skills proposed by Swartz and Parks (1993) i.e. *thinking in order to understand and explain; Creative thinking;* and *critical thinking.* The sub-categories of the latter further justify a compatibility between the two models in generating and categorizing knowledge and information by the use of *thinking skills* (Swartz and Parks, 1993) and *cognitive domains of thought processes* (Bloom et al., 1956). The concepts introduced by the two models can ultimately be used in *decision making* and *problem solving,* two major ingredients of higher-order thinking.

The idea concerning thinking or cognitive domains that conceptually link the Swartz and Parks Model with the Cogaff taxonomy can be diagramatically presented in the following manner:

Figure 2.5.2 (a)i: Compatibility of Concepts of Thinking Between the Swartz and Parks' Model and the Cogaff taxonomy

THE SWARTZ & PARKS MODEL	THE COGAFF TAXONOMY
1. Thinking in order to understand and explain	
A. Analysis of Idea:	} Knowledge
□ Compare and contrast	
□ Classify and translate	} Comprehension
□ Establish relationship	} Application
B. Analysis of argument:	
□ Determine causes and conclusion	} Synthesis
□ State assumption	} Synthesis
2. Creative thinking	
A. To generate possible alternatives from:	} Analysis
□ Many sources of idea	
□ Many different ideas	} Analysis
□ New ideas	} Analysis
□ Meticulous ideas	} Analysis
B. Combination of ideas	
□ Using analogies and metaphors	} Application, Analysis
3. Critical thinking	
A. Assessment of basic information	} Evaluative
B. Assessment of inferences by induction process:	
□ Explain cause/effect relationships/making predictions	} Affective/Evaluative/Analysis
□ Stating inferences using analogies	} Affective/Evaluative/Synthesis
□ Making generalizations	} Synthesis
C. Assessment of inferences by deduction process:	
□ Stating inferences using pre-requisites/categories of information	} Affective/Evaluative/Synthesis

2.5.2(b) The CDC Model (1993)

The CDC model of thinking was drawn up by the Curriculum Department Center (CDC), Ministry of Education, Malaysia in 1993. This model was innovated with the help of Prof. Jack Zevin from Queens College, New York (CDC, 1993). The use of this model

as one of the theoretical constructs underpinning the higher-order thinking conceptualized by the present study can be interpreted in two ways; Firstly, its inception endorses the Ministry's seriousness in injecting elements of critical/creative thinking into the Malaysian system of education. Secondly, the present study supports the Ministry's effort in trying to realize the objective of creating critical thinkers out of the system of education, *vis-a-vis* higher-order reading comprehension questions and tasks. In the CDC model, the thinking skills are categorized into four main categories namely: *creative thinking, critical thinking, problem solving*, and *decision making*. These are inter-related. They are detailed as follows:

1. Creative thinking

This category of thinking helps to widen and enhance the students' imagination and innovation to procure a wide range of diversified and authentic ideas. It stresses the use of the available data and information in order to generate new ideas and possibilities (CDC, 1993).

The examples of thinking skills under this category include: to give ideas; to predict; to state analogies; to state hypothesis; to link/associate ideas; to state/determine relationships/patterns; to draw conclusions; to map out concepts; to

invent; CoRT 1 and CoRT 4 thinking lessons (ibid., 1993).

2. Critical Thinking

This category involves the process of analyzing and assessing/evaluating ideas, data or information in order to create a better understanding which is firm and meaningful (CDC, 1993).

The thinking skills that can be categorized under this category include: the ability to classify; to sequence; to compare and contrast; to set criteria; to set priorities; to establish cause and effects; to make assumptions; to determine inclinations; to differentiate facts from opinion; to validate the source of information; to identify main ideas; to assess/ evaluate (ibid., 1993).

3. Problem solving

This category involves a complex process consisting of the following steps:

i. *to identify/interpret problems*: involves critical and creative thinking skills to assess/evaluate, understand and clarify the problem and to be able to identify or interpret the actual problem.

ii. *to identify means of solving the problem*: calls for the creative and critical thinking skills to identify ways of solving the problem.

iii. *to select the best way to solve the problem*: involves the skill to select the best solution for problem based on the criteria already identified.

iv. *to execute the best way to solve the problem*: involves the practical operations of problem solving using the way(s) already identified.

v. *to examine/assess/evaluate the effects of the solutions*: involves the skill to examine the effects or the validity of the problem-solving outcome.

4. Decision making

This process involves the process which is rather complex which consists of the following steps:

i. *to generate alternatives*: calls for the creative thinking skills in order to be able to generate alternatives.

ii. *to determine the effect of an alternative*: calls for the determination of the effects of an alternative that has been identified.

iii. *to select the best alternative based on the criteria already identified:* involves the skills of identifying the criteria for selection, assessing the alternative(s) and to make the best selection.

(CDC, 1993: 9)

The CDC model of thinking propagates four major thinking skills, namely; *creative thinking, critical thinking, problem solving* and *decision making*. These are akin to the higher-order thinking skills which are generated through the inferential processes of identifying, applying, analyzing, synthesizing and evaluating; the major cognitive domains as suggested in the Cogaff taxonomy. The

affective elements are implicitly suggested as the result of the evaluative processes that are carried out throughout the categories. Based on the categories of thinking and their sub-categories as outlined by the CDC Model, it can be concluded that its propagation of divergent thinking is highly congruent with the present study.

2.5.3 *Implications for the Malaysian System of Education*

The Ministry's aim of creating critical thinkers as the by products of the new focus in Malaysian system of education is being taken seriously and implemented in areas of authority where the Ministry has direct jurisdiction, e.g. teachers' colleges, government schools and related governmental institutions such as school inspectorates, textbook writers, key-personnel and state and district education officers. Generally, the application of the thinking models, especially the CDC, CoRT, Swartz and Park's Models have wide implications for the Malaysian system of education. The KBKK programme [*Kemahiran Berfikir secara Kritis dan Kreatif*] translated as the "Critical and Creative Thinking Skills" programme was introduced by the Ministry of Education in the early 1990's [Ministry of Education, Malaysia (1994)]. Key personnel were trained with relevant professional needs and demands of the new programme so that they become effective transmitters of the knowledge related to KBKK for the Malaysian school teachers. Intensive courses for the teachers on the new programme were then organized throughout the country. The idea was to equip them with the 'thinking tools' such as the CoRT thinking lessons (de Bono, 1982), CDC Thinking Model (1993), the Swartz and Park's Thinking Model (1993) and the Bloom taxonomy (Bloom et al., 1956). Consequently, the prescribed text books published in line with the KBKK programme, have stressed creative and critical thinking in their formulation of questions, tasks and activities to be used by school students and trainee-teachers (see Nagapan et al., 1991 and Chitravelu et al., 1995). Chitravelu et al (1995:v) have emphasized this in their book designed for teacher trainees: 'A number of activities are provided for the student teachers to work on. Their function is to encourage the notion that interpretation and creativity are an integral part of learning to be a teacher. They are also intended to nurture habits of thinking that

see action research and self-evaluation as necessary parts of teacher growth and student improvement'. This book was recommended reading for the TESL students at UPM.

As far as the ELT programme and examination is concerned, the move has a direct implication on the format of the examination papers, e.g. the English Language paper. Prior to 1993 (before the development of the KBKK programme), the 60 questions of the *English Paper 1* for the *Malaysian Certificate of Education Exam* (i.e. the National examination for Form Five students at the end of their Upper Secondary education) were 100 percent of the objective type (Examination Syndicates, 1995). There was little scope for subjective questions and the pre-requisite for thinking skills was undermined. This does not imply that such a skill was totally neglected, for objective questions, if carefully and intelligently formulated can be thought provoking as well. Realistically, the answers demanded by the open-ended questions provide a wider opportunity for students to express their thoughts and feelings beyond what is prescribed by the author(s).

In line with the demands of the Ministry's new focus on critical and creative thinking, the English Paper (Bahasa Inggeris 1322) has a new format which is to be introduced in 1997 (The Examination Syndicates, Ministry of Education, Malaysia, 1995). 50 percent of the questions in *Paper 1* will consist of the subjective open-ended type. This will provide a greater challenge for students to engage in more thought provoking questions which demand more creative answers.

The Ministry's keen interest in trying to make the KBKK programme a successful and an effective measure to disseminate critical and creative thinking into the Malaysian system of education, within areas of its jurisdiction, was widely accepted. Unfortunately, this did not seem to produce the desired impact on some of the teacher training institutions outside the Ministry's direct jurisdiction. As an example, UPM (TESL Unit of the Faculty of Education) although subject to the Ministry's approval over matters concerning educational policies, has the

autonomy to decide on and plan its own academic syllabus and curriculum. As detailed in Chapter Two, the syllabus for the Reading Course (appendix 4.1.1a and b) of the new curriculum for the TESL Programme implemented since 1994 had not included any consideration for the KBKK programme in its course outline (see Curriculum Committee, Kertas Bil. 98.4, 1994). Judging by the course outline of the reading course (BB1 354), the reading syllabus does not emphasize the inculcation of critical and creative thinking as demanded by the Ministry of Education, Malaysia (detailed discussion in Chapter One).

The effort to introduce relevant reference materials (emphasizing thinking skills as stated earlier) to be used by the students alone is not likely to produce the desired impact, unless the TESL programme at UPM takes the bold step of emphasizing the KBKK programme in its reading course. The application of the Cogaff taxonomy might bring the right impetus as a 'thinking tool'.

There are many other thinking models that can be applied in classroom practice in the teaching of thinking skills. The modules of *Somerset Thinking Skills Course* (Blagg et al., 1988) have been widely used in England, but they have not yet been practised in Malaysia. Other well known references in thinking skills may include Blagg (1991, 1993); Baron and Sternberg (1987); Coles and Robinson (1991); Nickerson (1987); Nisket (1990). In close resemblance to the present study, Baron and Sternberg (1987) discusses the importance of questions and answers in relation to the teaching of thinking skills. While, Nickerson (1987), on a related issue, has stressed that thinking can be improved through instruction.

The Theory of Multiple Intelligences

In the light of so many theories related to teaching and learning (e.g. Gardner's Multiple Intelligences, 1993; Integrative Learning, 1987, 1989), currently being claimed to be 'synonymous' with educational development of the 'information age' (Martel et al., 1991) as opposed to the educational norms normally practised during the 'industrial age' that is suddenly becoming plethoric and redundant as claimed by the proponents of the Integrative Learning (ibid, 1991), the Malaysian Ministry's of Education's move of not considering both

theories into its thinking models in line with the current pursuit of producing critical and creative students as its long-term output is fortunate and strongly commended. The Ministry's stance of delineating itself from those (including theories) that are dubious in their underpinning principles albeit their claims of being widely effective and successful is strongly supported by the stance adopted in the present study.

Gardner's Theory of Multiple Intelligences (Gardner, 1983) which categorises human's intelligence into seven types: *linguistic intelligence* (i.e. sensitivity to language, meanings and the relations among words. Commonly found in the novelist, poet, reporter etc.); *logical-mathematical intelligence* (constitutes abstract thought, precision counting, organization, logical structure as found in mathematician, scientist, engineer, police investigator etc.); *spatial intelligence* (this is keen observation, visual thinking, mental images, metaphor as found in architects, painters, sculptors, navigators, chess players etc.); *bodily-kinesthetic intelligence* (control of one's body and of objects, trained responses that function like reflexes as found in dancers, athletes, actors, inventors, surgeons, karate teachers etc.); *musical intelligence* (the sensitivity to pitch, rhythm, as found in the performer, composer, conductor, musical audience, etc.); *inter-personal intelligence* (sensitivity to others, ability to read the intentions and desires of others and potentially to influence them. Includes consideration of others as found in politician, teacher, religious leader, counsellor, etc,); and *intra-personal intelligence* (self-knowledge, sensitivity to one's own values, purpose, feelings, a developed sense of self as identified with novelist, counsellor, wise elder, philosopher, person with deep sense of self) are projected to be another important discovery in the theory of learning. The concept behind the 'Multiple Intelligences' is explained in Gardner's own words, 'I present an anatomy of creativity as seen through the lives of Sigmund Freud (my representative of *inter-personal intelligence*), Albert Einstein (*logical-mathematical intelligence*), Pablo Picasso (*spatial intelligence*), Igor Stravinsky (*musical intelligence*), Martha

Graham (*bodily-kinesthetic intelligence*), T.S. Eliot (*linguistic intelligence*), and Mahatma Gandhi (*interpersonal intelligence*)' (Gardner, 1995).

Gardner's theory of Multiple Intelligences are the embodiment of the intelligences of a number of exemplary human's outstanding figures studied under idiographic (individual case study) and nomothetic (that considers rules over large number of case studies) approaches over a number of years (ibid, 1995). His categorisation of intelligence challenges the concept of intelligence posed by the traditional view which constitutes the *linguistic* and *logical-mathematical intelligences* employed by Binet. His categorisation of intelligences which is based on the attributes of some outstanding characters, as questioned by some, raises the issue of whether the intelligences are exhaustively definitive of all human's exemplary attributes that cut across social, ethical, geographical, political and religious boundaries. If the answer is 'doubtful', then what would stop one from adding on to the list further categories of intelligences related to some other attributes?

Integrative Learning Theory

Integrative Learning which strongly advocates the idea propagates by Gardner's Multiple Intelligences in promoting teaching and learning is regarded as the 'training excellence for the Information Age' (Martel et al., 1991). It 'offers a completely new vision, purpose and direction by which all students can develop their human potential in terms of their own heritage and culture' Kline (1991: 76). It has its theoretic unpinning based on three major components: input, synthesis, and output (ibid, 1991). 'Synthesis' according to Kline (1991: 76) 'occurs when a student has compared the new input to previous experiences, thereby establishing a working relationship between the two'. This in turns, will influence judgement. The chains of 'input-process-output' in describing the learning process has already been established by Bloom when he modeled his 'Cognitive Entry Behaviours' (Bloom, 1976) which schematizes the learning process as: input, quality of instruction, and output. This concept was further developed by Reid in his 'Process of Learning' (Reid, 1994) which operates on the basis of input, cognition and

output. 'Cognition' is the process involved when the material undergoes some form of changes as the learners try to make sense of it (Reid, 1994). When Bloom was adopting a more general approach in arriving at the 'output', Reid's use of 'cognition' as compared to 'synthesis' adopted by the Integrated Learning in describing the 'link' is more explicit and pragmatic. It is more sensible to associate a 'cognitive operation' to describe the mental process involved between the two, for 'synthesis' would imply the use of a 'limited' notion which disregard the other cognitive processes such as 'analysis' and 'synthesis'.

2.6 Theories of reading process

The objective of this section is to highlight the different theories of reading processes that have been widely used in the teaching and learning of reading in order to identify one that can be used as the theoretical construct of this study. Theories and current key concepts, such as *information transfer*, the *psycholinguistic view of reading, metacognition, schema theory, bottom-up and top-down, interactive* and *transactive* theories, are among the well-known developments in the field of reading that have been widely applied. After considering each theory, the *transactive theory* of reading is chosen to be the theoretical construct which underlines the idea how reading is regarded in this study.

Many of the theories underlying the teaching of comprehension have had unfortunate effects. According to Cairney (1990: 13), "attempts to describe the process have conflicted with each other, much to the confusion of teachers. These theories have varying degrees of influence upon classroom practice". Their influence has been seen indirectly in commercial materials that have applied a range of contemporary theories quite differently in their approach of question and task construction. They have also made their way into the teaching curriculum used as part of pre-service and in-service teacher training (ibid, 1990).

One influential group of reading models has been labeled as *Information Transfer* theories. These theories (e.g. La Berge and Samuels, 1974) have been

strongly influenced by cognitive psychology and are largely responsible for the widely held view that reading is a process of information transfer. The proponents of this theory assume that reading comprehension involves the transfer of knowledge from the page to the reader's head. Furthermore, they assume that testing children's ability to perform this process leads to improved comprehension. Reading is viewed as a process of meaning transfer requiring readers to extract meaning from print. Readers are seen as passive consumers of other people's texts and meanings. The readers' ability to infer meaning is based on their own background knowledge, but their feelings and attitudes seem neglected. This runs contrary to the Cogaff taxonomy where the affective domain (aspects of feelings and attitudes) is considered an integral component.

Other theories, models, or views of reading, originally formed for readers in general but increasingly cited in the field of second or foreign language reading are briefly considered; (a) a psycholinguistic view of reading, (b) schema theory, (c) interactive theory, and (d) views of metacognition in reading. In some studies, investigators were specifically "testing" the applicability of aspects of a pre-existing reading theory, model or view (i.e. essentially an L1 view) in ESL reading situations (i.e. reading in L2). It is frequently hypothesized that a theory, model, or view would be applied for ESL learners with little variation or accounting for different contexts. Fitzgerald (1995) briefly outlines some views on reading theories.

In brief, a *psycholinguistic view* of reading holds that reading is not a linear process, but that readers sample texts and make the test hypotheses and predictions, relying on their own background of the text's content as well as background knowledge about how language works (Goodman,1970). In the sampling process, readers use three cueing systems: graphophonic, syntax and semantics.

Schema theory postulates that knowledge is systematically organized (Rumelhart, 1985). A schema can be defined as a knowledge structure having elements or components which can be delineated and which are ordered in specific

ways. Readers are thought to use schemata to anticipate text content and structures, to guide understanding during reading, and to aid recall after reading.

According to Cairney (1990), a number of theories (e.g. Goodman and Smith) have challenged the assumptions of transfer-dominated theories of reading, and developed *interactive theories* which place far greater importance upon the role of the readers (and their previous knowledge) in the reading process. An interactive view of reading holds that reading is both "top-down" and "bottom-up" (Rumelhart, 1985). That is, to simplify, part of the reading process entails interpreting graphic information from the page (bottom-up), and part involves using knowledge already present in the mind of the reader (top-down). The term *interactive* refers to the interactions that can occur between "higher-level" and "lower-level" information, such as the influence of surrounding context (higher-level) on perception of individual letters or words (lower-level). Reading involves the interaction of both knowledge-based and text-based processes (Goodman, 1988). Efficient readers, according to proponents, use prior knowledge to interact with the text, which enables them to construct meaning. One obvious implication of this work is that teachers need to spend more time getting their readers to 'engage' with texts.

Metacognition refers to awareness of one's own reading processes. Brown (1980) defines a student's metacognitive skills as the knowledge and control he has over his own thinking and learning activities. Principally, it entails awareness of one's own understanding and non-understanding of the particular reading strategies one employs, and of monitoring comprehension during reading. In a summary of research on *metacognition*, Garner (1992) has stated that younger children (from kindergarten or to grades 2) know substantially less than older children (particularly those in grades 5 and 6) about themselves, the task they face, and the strategies that they employ in the area of memory, reading and attention. Teaching methods which involve direct explanation of strategies, questions about strategies, and substantive feedback about strategies, all promote conscious awareness and control of cognitive processes, or *metacognition.*

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Beyer (1992) clearly defines and relates the position of *metacognition* to the actual meaning-making process. *Metacognition*, he believes, operates at a level superordinate to that of meaning-making, hence its position is seen as an outer ring of the thinking operations (see figure 2.6(a)). Beyer (1992: 24) emphasizes, "Metacognitive operations are applied to the strategies and skills used to produce meaning rather than directly to data or experience. Metacognition seeks to control these meaning-making operations - to guide, to correct, to adjust and direct the selecting, sequencing, and executing of the cognitive operations by which one seeks to make meaning". It consists of several different kinds of operations, the most important of which are *planning, monitoring,* and *assessing* the thinking in which one is engaged. Metacognition requires individuals, in effect, to stand outside their own heads and to be aware of how they are going about their own thinking so that they can better accomplish what it is they are trying to accomplish (ibid., 1992). *Metacognition,* therefore, relates to one's ability to employ the right strategies to engage in the thinking process but not the actual thinking that takes place. It describes the 'process' which involves *assessing, monitoring and planning* rather then the 'product' of thinking which Beyer refers to as *cognition* (sub-categorized as *recalling & recounting, processing, critical thinking, decision making, reasoning, creative thinking, conceptualizing,* and *problem solving*). It is *cognition* that relates directly to critical thinking.
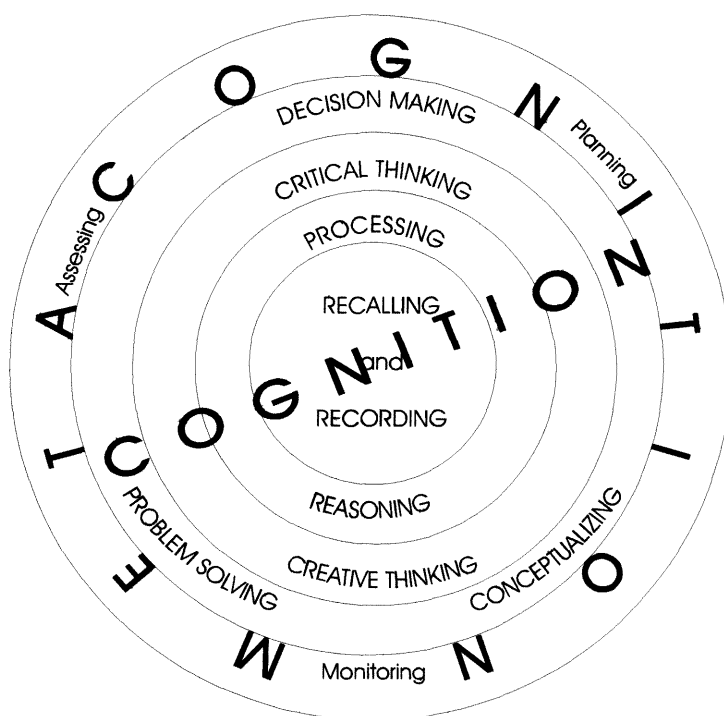
Figure 2.6 (a) A Model of Functional Thinking (From Beyer, 1992: 23)

2.6.1 Research perspective - *Transactive theories*

More recently, a number of **Transactive theories** of reading have been developed (Rosenblatt, 1978, 1985; Shanklin, 1982) as an extension of *interactive theories*. This study is closely associated with this belief for the notions implied by the utilization of the levels of thought processes in the Cogaff Taxonomy are parallel to the **transactive** theory which suggests that the meaning is not simply in the text and the reader. Rather, the meaning is created as readers and writers encounter texts. It is seen as 'greater than' either the written text or the reader's prior knowledge. This is what makes it different from the interactive theory. When a reader needs to evaluate or state his feelings or emotions over certain information

or issues discussed in a reading text, much of his endeavour is free of the influence of the background knowledge. Rosenblatt (1978), for example, suggests that when reading, the reader creates a 'poem' (text) which is different from both the text on the paper, and the text in the reader's head (i.e. that made up of prior knowledge, the linguistic data pool, etc.). The meaning in this new text is greater than the sum of the parts within the reader's head, or on the page.

Beyer (1992)(Figure 2.6(a) describes the ability to comprehend and understand as 'meaning-making', which is the goal of cognition. Its operation involves *recalling* or *recording, reasoning, conceptualizing, decision-making, problem-solving, processing* and *critical thinking* . Beyer (ibid., 1992: 24) stresses,

> *Thinking to make or find meaning differs considerably from metacognition, thinking about how one is engaged in that meaning making. The former seeks to produce a product, the later to direct the cognitive operations being employed to produce that product. The former acts directly on data, experience, thoughts, and perceptions; the later acts on the cognitive operations that generate and manipulate these phenomena. Mastery of the former is what educators customarily focus on in teaching thinking.*

The idea of different levels of *thought processes* or *comprehension processes* comprising a hierarchy of domains of thinking as in *literal, comprehension, application, analysis, synthesis, evaluative* and *affective* proposed by the Cogaff Taxonomy to treat meaning and comprehension is very much in line with the *Transactive* theory of reading and *meaning-making* proposed by Beyer (1992). It is acknowledged that Beyer's Model of Functional Thinking Operations, employed by the *Transactive* theory, are those operations most often referred to in the literature of science, language arts, and social studies teaching in relation to critical and creative thinking (ibid.,1992).

2.7 Research using Bloom's taxonomy of educational Objectives

Bloom's *Taxonomy of Educational Objectives* has been utilized by other researchers as a model for the generation of similar classifications systems for analyzing questions. Torrance (1964), for example, in his concern for the creative

development of the individual has suggested the following system for classifying questions:

1. Comprehension; 2. Application; 3. Analysis; 4. Synthesis; 5. Evaluation.

Another taxonomy adapted from Bloom's work has been proposed by Sanders (1966). Sanders attempted to improve the art of teacher questioning through the use of a system which has the following categories: (1) memory, (2) translation, (3) interpretation, (4) application, (5) analysis, (6) synthesis, (7) evaluation.

There are many other studies, seminal papers and educational references in question and classroom task design carried out using categories based on the Bloom Taxonomy (Teidt, *et al.*, 1992; Perrot, 1982; Hatcher, 1971; Spaziani and Courtney, 1971; Ober, 1970; Davis and Tinsley, 1968; Scott, 1966). In the context of foreign or L2 reading classrooms, the most recent application of Bloom's taxonomy was by Aebersold and Field (1997). Referring to the taxonomy as a tool for distinguishing different cognitive processes in the learning and teaching of **reading comprehension** , they state,

> Bloom's complete discussion of these levels gives teachers a tool
> for distinguishing the cognitive processes that students can use in
> the classroom when answering reading comprehension questions.

(pp. 118)

Later works by others (Aebersold, 1984; Bormuth, 1969; Davies & Widdowson, 1973; Pearson & Johnson, 1978) attempted to connect Bloom's categories to the processes students use to answer different types of questions. In other words, in order to determine what thought processes readers must engage in to answer questions, teachers need to know what information is provided to them in the text and how that information is provided. For example, a question eliciting the main idea of a paragraph requires different cognitive processes depending on whether the idea is explicitly stated in a sentence in the text, or whether it is not stated. In the first case is a matter of *literal-level* comprehension; in the second is *inferential-level* (Aebersold & Field, 1997).

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Tiedt, et al., (1989) in their application of Bloom taxonomy demonstrated how lesson plans using RC questions and tasks can be designed based on the taxonomy. Figure 2.7(a) presents how RC tasks are designed by Tiedt et al. (1989) and by using the Cogaff taxonomy (RC tasks are some of those designed by the subjects of the study). What students need to know are the key words that belong to each category. Once the key words that defined each level are internalized teachers can readily apply them to construct the different levels of tasks as demonstrated by the subjects of the present study in their application of the Cogaff taxonomy.

The RC tasks suggested by Tiedt et al (1989) are categorized according to the different levels of Bloom's taxonomy. The lower-order tasks (i.e. *knowledge* and *comprehension*) call for factual answers and can easily be assessed by teachers as answers can be gathered from the text. There is no one correct answer for the higher-order tasks (i.e. *application - affective*). As such, teachers might be facing a daunting task in assessing students' answers for the higher-order tasks. There are several techniques and procedures that teachers can develop to assess cognitive skills (see Ronan et al., 1976; Chi et al., 1982; Anderson, 1982; Konold and Bates, 1982; Carlo et al., 1992). Royer et al., (1993) suggested that tasks can be assessed according to several dimensions as proposed by Glaser et al., (1985) using the following characteristics:

Figure 2.7(a) RC Tasks using Tiedt et al's (1989) Model and the Cogaff taxonomy

RC tasks (Tiedt et al., 1989)	RC tasks (Cogaff Taxonomy)
Knowledge	Knowledge
1. *Recalling the events of our lives in a brainstorming activity* 2. *Labeling/naming the events* 3. *Listing the events* 4. *Sorting the events into ten categories* 5. *Defining the events in a sample-search*	1. List out the advantages and disadvantages of the community project according to the passage. 2. Identify the main idea of each paragraph in the text. 3. Arrange all the jumbled-up sentences into their proper order according to the story that you have heard.
Comprehension	Comprehension
	1. Explain the meaning of the underlined

	phrases in your own words.
1. *Locating the events/persons in library sources* 2. *Restating in own words the information found* 3. *Describing the events* 4. *Reporting the events* 5. *Explaining the events*	2. In your own words, restate the idea in paragraphs two and three of the text. 3. As a reporter, briefly report the incident that take place during the storm as understood from the story. 4. Based on the story, state the reasons behind his failure in his career.
Application 1. *Sequencing all the data into a continuum* 2. *organizing all the data in a systematic way* 3. *Illustrating the findings in a class scrapbook or collection*	**Application** 1. Given the writer's situation and condition, express yourself to a counselor to get rid of the stress due to the accident. 2. Summarize the story in not more than one hundred words 3. Give an illustration of the story mentioned in the text using daigrams.
Analysis 1. *Examining the events for reclassification into new categories* 2. *classifying the events into new groups* 3. *Writing comparisons/contrasts about items within a group* 4. *Researching more deeply where necessary* 5. *Interpreting the meaning of these events*	**Analysis** 1. Discuss the reason behind the writer's refusal to do anything at the time of watching the incident. 2. Using the information in the story, state the similarity and differences between the French Resistance and the German soldiers. 3. What, according to your judgement, that had cause the judge to turn the verdict to the defendant's advantage at the end of the trial.
Synthesis 1. *Planning a videotape* 2. *Composing a script* 3. *Designing and constructing sets, props, and costumes* 4. *creating scenes from the events of our lives for videotape*	**Synthesis** 1. If you were the manager of the company that owned the sinking ship, what plans do you have in mind to repay the bereaved family. 2. Outline ways of how the problems faced by the different groups of workers can be resolved. 3. Based on the story,
Evaluation 1. *Prioritizing the events* 2. *Judging the events* 3. *Evaluating the events* 4. *Rating the events as a class* 5. *Predicting the long-term effect of the events*	**Evaluation** 1. State your opinion about the manner the story was concluded by the writer. 2. Do you think the objectives of fostering a caring community have been achieved through the 'community project'. State your reasons. 3. Having read all the different opinions voiced by the leaders of the groups in dispute, which

Tiedt et al.,(1989: 73)	do you think win your support. Give reasons.
	Affective
	1. Discuss the moral values of the story.
	2. Based on the lesson that one can learn from the story, develop plan to inculcate the sense of responsibility among the students.
	3. How can you show a feeling of gratitude towards your parents.

i.) *Knowledge organization and structure* - it is stored as a set of unrelated or loosely related facts.

ii.) *Depth of problem representation* - the ability to perceive a problem in terms of abstract principles that subsume the particular problem as well as related problems.

iii.) *Quality of mental models* - demonstrates the learner's ability to envision the operation of systems within the domain e.g. the ability to index skill development within the domain.

iv.) *Efficiency of procedures* - the ability to efficiently utilize acquired skills as an index of growing skill development, e.g. unskilled individuals can frequently reach the correct solution to a problem by adopting a 'trial and error' method. The skilled performer, on the other hand, follows a solution path that eliminates many of the unnecessary steps.

v.) *Automaticity of performance* - This differentiates the skilled from unskilled performers by looking at how tasks are being accomplished. An unskilled individual, as a result of his limited capacity to process information, normally resorts to a conscious reasoning process in handling a task. In contrast, a skilled performer can handle tasks in an automatic and nearly load-free manner.

vi.) *Metacognitive skills of learning* - it demonstrate the students' ability to reflect and to control their performance in a useful and efficient manner. Skilled performers possess the capability of planning their activity, monitoring the success or failure of their own activities. Less skilled performers are far less proficient at this monitoring process.

Royer et al, (1993: 207-208)

Perrot (1982: 42) in her classification of questions suggests that 'one of the best known classifications is Bloom's *Taxonomy of Educational Objectives*, and questions

(1956)'. She classified the six levels of thought processes and gave detailed outlines of how questions can be constructed based on each level. She defines *knowledge* as the result of 'when you determine whether pupils remember certain specific facts when recall questions are asked'(ibid., 1982: 42). Recall, 'is observable when a pupil states specific facts or gives information in much the same form as it was previously presented by the teacher or in textual material. A recall answer does not go beyond the information previously presented, nor does it change the form or organization of the information' (ibid., 1992: 42).

Comprehension is engaged when questions are asked to help pupils to organize facts in such a way as to make some sense of them. These questions will require the pupil to select those facts that are pertinent in order to describe, compare or contrast (Perrott, 1982). She asserts that it is important to remember that the information necessary to answer comprehension questions should already have been provided for the pupil. For examples of *comprehension* questions, see 4.1.5b.

Words commonly found in *comprehension* questions are: describe, put in your words, compare, contrast, explain.

(Perrott, 1982: 43)

Application questions are asked when 'your purpose is to encourage your pupils to apply information they have learned in order to reach an answer to a problem. These questions require the pupils to apply a rule or process to a problem in order to determine the correct answer' (Perrot, 1982: 44). She demonstrates the use of the taxonomy as a tool of measuring educational objectives that can be utilised across the curriculum. For example of *application* questions, see 4.1.5b.

An *Analysis* question, according to Perrot, (1982: 44) is asked 'When your purpose is to help pupils not only to remember and organize information, but also for underlying reasons such as cause and effect, explanatory-type questions are asked. The analysis questions can be sub-divided to show different motives; This is illustrated by examples in 4.1.5b.

Perrott (1982) maintains that analysis questions require critical thinking from pupils. A pupil is unable to answer an analysis question by repeating information. Analysis questions require pupils to analyze information in order to identify causes, to reach conclusions or to find evidence.

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Words frequently used in analysis questions are: why?, what factors?, draw conclusions, determine evidence (support, analyze).

Synthesis questions are asked, 'when your purpose is to help pupils to form relationships and put thing together in new or original ways' (Perrott, 1982: 45). These questions are used to help develop the creative abilities of pupils. Such questions test a thorough understanding of a subject and may require pupils to make predictions, to make original communications or to solve problems (ibid., 1982). Although *application* questions also require pupils to solve problems, Perrott (1982) differentiates *synthesis* types from the earlier in that they do not require answers to problems that have a single correct answer, but instead, allow a variety of creative answers. Examples of *synthesis* are given in 4.1.5b.

Word and phrases often found in synthesis questions are: predict, produce, write, develop, what would happen if ... ?

Perrott (1982) defines *evaluation* questions as the ones that are asked for the purpose of helping pupils to choose among alternatives by judging which best fits some stated value. She further emphasizes that these questions do not have a single correct answer but require the pupil to judge the merit of an idea, a solution to a problem or an aesthetic work. They may also ask the pupils to offer an opinion. Examples of *evaluation* questions are presented in 4.1.5b.

Words often used in evaluation questions are: judge, assess, decide, justify.

In line with Perrott's view, all teachers questions in the present study are categorized on the basis of the anticipated pupil's answer. All pupils' answers, however, are in this model categorized only on the basis of the kind and level of thought processes revealed by the actual verbal response. This study does not intend to involve the pupils' answers for the main objective is to examine the levels of teachers' questions and tasks. Further studies on the levels of pupils' answers in terms of cognitive domains based on the teachers' questions would be interesting to discover. As previously argued, there is a strong sense in which teachers' questions are logically prior to those of students. The idea, concepts and construct as outlined by Perrott (1992) in her application of the Bloom Taxonomy in designing questions help to make its pedagogical implications for question designing much more clear and pragmatic. Her ability to differentiate one level of thought processes from another by means of clear-cut definition, examples and key concepts make it easy for the

present study to adopt a similar approach of using the taxonomy in constructing and assessing the RC questions and tasks.

Kissock and Iyortsuun (1982) in extending the applicability of Bloom et al's Taxonomy (1956) and applying Krathwohl et al's work (1964) included the affective domain in classifying the educational objectives. They explained in detail the importance of this domain for the development of attitudes and values. They stress, 'there is also a close relationship between the cognitive and affective domains. For every affective question or objective there is a cognitive part. For each cognitive question or objective there is an attitude that is desired' (Kissock and Iyortsuun, 1982: 10).

All the above studies, especially of Tiedt's (1989), Perrott's (1982) and Kissock & Iyortsuun's work, have deepened the researcher's understanding of the concepts related to the Bloom Taxonomy of Educational Objectives. Their definition and description of each level of thought processes and the examples of questions and key words and tasks used and applied for each category have shown how each domain can be used and applied in the construction of questions and tasks. By the same token, Kissock and Iyortsuun (1982), are credited for their concise work in extending the taxonomy by including the *affective* domain, as originally introduced by Krathwohl et al. (1964), which is another important element to be considered in educational objectives. Studies on Bloom's Taxonomy by other researchers have also, to some degree, contributed towards the researcher's better understanding of the taxonomy as a whole.

2.8 Conclusion

Based on the literature review that has been presented it can be concluded that;

1. Teachers' widely observed preference for the low-order questions can be considered a global issue. Despite the many references and emphases made on the importance of the higher-order questions to teach students to think creatively in many research studies, teachers' use of low-order questions is still apparently overwhelming.

2. Despite the Malaysian government's emphasis on higher-order divergent thinking to be made predominant in the classroom teaching in KBSM, the Malaysian teachers' preference for the low-order convergent questions and task still predominates (KBSM(CDC), 1990; Seng,1990; Mustapha, 1995a, 1995b). More systematic

techniques and teaching methods that are practical and yet effective are required so that teachers become more proficient and confident in handling the development of critical thinking.

3. The application of the Cogaff Taxonomy (adapted from Bloom et al. (1956) and Krathwohl et al. (1964) in designing higher-order RCQs and RCTs in the teaching of Reading Comprehension lessons seems to be in accordance with the Ministry's suggestion that a review should be made of the use of Bloom's Taxonomy to design more challenging questions and tasks and train students to become creative and critical (Pukal Latihan KBSM, 1992).

4. There have been many attempts in research in education to use Bloom's Taxonomy in designing higher-order questions and tasks during RC lessons (Kissock and Iyortsuun, 1982; Perrott, 1982; Irwin, 1991; Tiedt et al., 1989; Ministry of Education, Malaysia (CDC), 1992; among others) to lead to improved students' performance and conduct. Peterson et al. (1990), in a study defining and establishing relationships between higher-order RCQs and students' performance, discovered that teacher participation in the training programme conducted in the study resulted in substantial increases in the students' achievement and conduct.

5. Using Reading Comprehension lessons as a medium of generating students' higher-order thinking skills through RCQs and RCTs accords with the principles of the KBSM, which stipulates that higher-order thinking skills should be taught and practiced across the curriculum (Pukal Latihan KBSM, 1992).

6. The use of higher-order RC questions and tasks in inculcating higher-order thinking skills (creative and critical thinking) has been abundant (see Kissock and Iyortsuun (1982), Perrott (1982), Tiedt, (1989), Morgan and Saxton (1991), Penner (1995), Fleming (1995), Orletsky (1997), among others).

CHAPTER THREE

Methodology

3.0 Introduction

The methodology adopted for both the pilot and field studies is hereby outlined in this chapter. The pilot study was conducted with the aim of testing out the research construct and identifying its strength and weaknesses. The field study was conducted three months later in Malaysia using a similar method. The control groups in the field study were exposed to the same treatments as the experimental groups, except that they did not undergo the *intervention* stage (phase 2).

3.1 The Pilot Study

The pilot studies were carried out at the Universities of Birmingham and Manchester in March 1995 using all the final year and some other post-graduate Malaysian students reading for a B.Ed in TESL/TEFL in the two universities. The Pilot Study was conducted on 10 March and 21 March 1995 respectively, involved forty Malaysian teachers (twenty from each university) who were undergoing a three-year in-service B.Ed in TESL programme in the two universities. The teachers, who had taught English as a subject for at least five years in Malaysian Primary or Secondary schools, were trained in Malaysian teachers' colleges for at least three years prior to their postings in schools. Each subject was expected to design at least five RC questions and tasks during the workshop session. The results, apart from establishing their ability to apply their current knowledge of reading instruction would also, to a certain extent, reflect on their previous training and experience. The task was carried out collaboratively in groups of two or three to encourage discussion and better performance and to avoid any emphasis that this was a test.

The methodology adopted for both Pilot and Field studies is diagramatically presented in figure 3.1(a), while figure 3.1(b) shows the procedure taken by the control groups.

Figure 3.1(a) The Methodology of Pilot and Field Studies

	I		II		III
Phase 1 PRE- INTERVENTION (Subjects)	Reading text 1		Design RC tasks/ activities		Responding to Questionnaire

	I		II		III
Phase 2 INTERVENTION (Researcher)	Rationale and review of literature - Previous studies - Contemporary studies		Theoretical framework - Different taxonomies - Cognitive/ affective taxonomy/Comp. processes (CP)		-RC question designing using Cog/affective taxonomy - Developing RC tasks using `Cogaff' taxonomy/CP

	I		II		III
Phase 3 POST - INTERVENTION (Subjects)	Reading text 2		Designing RC - questions - tasks according to `Cogaff' taxonomy/CP		Question/answer session

Figure 3.1(b) The Pilot/Field works - Control Groups

	I		II		III
Phase 1 PRE- INTERVENTION (Subjects)	Reading text 1		Design RC tasks/ activities		Respond to Questionnaire
Phase 2			NO INTERVENTION		
Phase 3 POST - INTERVENTION (Subjects)	Reading text 2		Designing RC - questions - tasks according to `Cogaff' taxonomy/CP		Question/answer session

The basic academic qualifications and teaching experience of the subjects for the pilot studies were very similar to those of the B.Ed TESL student teachers of Universiti Putra Malaysia, the would-be subjects for the fieldwork later conducted in Malaysia. The Pilot study was conducted as follows;

1. The session started with reading comprehension question designing. Each group was given a comprehension text where they were required to design at least five RC questions based on the text. The texts were taken from books recommended for secondary schools to ensure all appropriate level of difficulty and complexity. It was highly unlikely that the subjects had used the texts for precisely this purpose before, although it is possible that some had read the texts at some time or had general knowledge of the topic. This possibility applies to all groups and can be taken as a

background variable. Each group then designed at least three reading comprehension tasks and activities based on the text. Due to the time constraints, the subjects were expected to design only five RCQs and three RCTs. Any attempt to make more questions and tasks was encouraged. At this stage, the subjects were not given any clues or hints to what kinds of questions or tasks and activities they were expected to formulate.

2. Questionnaires on 'Teacher training for the teaching of reading comprehension' were then administered (see appendix 7.1). The questionnaire sought to elicit information about the teachers' experience and knowledge of reading comprehension questioning techniques and skills. The subjects were given thirty minutes to respond to the questions The questionnaires were completed individually. The questionnaires were given after the subjects had formulated comprehension questions on the text in part 1 to ensure that the questionnaire provided no clues or bias towards the designing of the questions, tasks and activities..

3. A Workshop on questioning techniques and task formulation was then conducted. The major emphasis focused on using taxonomies of questions, including the cognitive/affective taxonomy and how they could be utilised in the construction of reading comprehension questions or used in designing task-based activities. It is important to note that while the Cogaff taxonomy was introduce this was not the sole focus of the workshop. The materials used in the workshop is in Appendix 2.2.

4. The students were then given the second text of the same level of difficulty and type as the first text. From this they were expected to design another set of five or more reading comprehension questions followed by a few tasks and activities . The session ended with the subjects responding to the same questionnaire for the second time. It was hypothesized at this stage that these second responses to the

questionnaires regarding questions, tasks and activities would show uses of a greater range of levels and greater variety as the students had been exposed to the application of taxonomies of questions in part 3 and in handling reading comprehension texts.

3.2 The Field Work

The field studies, conducted from July to September 1995 in Malaysia, comprised two major operations; namely,

Operation 1 - It was carried out in two major groups:

Group 1 - The UPM final year TESL students (experimental group), and

Group 2 - The UPM fifth semester (Control group);

Operation 2 - Operated in two stages:

Stage 1 - Involving the Malaysian trained teachers in selected schools in Negri Sembilan (a state in Malaysia) and;

Stage 2 - A documentary study of Malaysian secondary school text books.

All operations and stages covered in the field study were strongly linked and inter-related with one another. It was hoped each would contribute to an understanding of the pedagogical insight on the manner of how questions and tasks are being handled in relation to reading comprehension instruction in Malaysia.

Operation 1(Group 1): UPM's TESL students (experimental group)

In the main study the subjects were 100 UPM students who were currently in their final year of the four year B.Ed TESL programme. They comprised two groups: pre-service and in-service (see figure 2.1.1).

The pre-service group (EM) i.e. of 48 subjects were fresh student teachers enrolled into the programme after completing upper secondary education with a grade one (a pass with distinction) in the Malaysian Certificate of Education Examination and a good pass, including two of the English papers; English 1119 or English Literature offered in the Secondary School Syllabus by the Ministry of Education.

They had to pass with acceptable credits a two-year TESL Matriculation programme before enrollment into the B.Ed. TESL programme, (hence the abbreviation Ex-Matric, in this study).

The matriculation programme was mainly designed for the purpose of equipping the students with relevant basic knowledge from such TESL related courses as study skills, reading and reasoning, computers in education, English drama, and Literature. Besides, the course enhances students' proficiency in the *four main skills* (listening, reading, speaking, and writing) and the *subsidiary language skills* in English, as (grammar, study skills, punctuation, pronunciation, and vocabulary) within the ESL curriculum (Scarcella and Oxford, 1992).

The in-service group, of 52 subjects involved, were teachers (ET) who had taught English as a subject in primary or secondary schools in Malaysia. They were college-trained and had taught for a minimum of three years prior to their enrollment into the B.Ed. TESL programme. Some candidates who had successfully followed a one-year course and secured an acceptable qualification such as a Diploma in TESL from foreign or local universities were admitted into the programme after interviews and written tests. Varying in age, teaching experience and locality of origin, they apparently made up a fair representation of the Malaysian population of English teachers as a whole.

The workshop was conducted as follows;

1. The workshop started by getting the subjects to design relevant questions based on a text given to them at the beginning of the session. They were required to formulate at least seven questions (30 minutes).

2. The subjects then prepared reading comprehension (RC) tasks or activities, as many as they deemed fit for the purpose of teaching/using the text in an eighty minute reading comprehension lesson (40 minutes). The number of RC tasks to be constructed were not limited in number so as not to provide any clues to the research intention of examining whether there is any relationship between RC questions and RC tasks. The eighty-minute time for the intended lesson set a natural limit to the number of tasks required.

3. The subjects then responded to the questionnaire on `Teacher training for the teaching of reading comprehension. The questionnaire elicited information about

their experience and knowledge of reading comprehension questioning techniques/skills and tasks and activity design. These responses would serve to establish if there were any notable principles/ideas/skills used by the subjects in designing the questions and tasks and to see if there were any correlations between responses and actual tasks designed (30 minutes).

4. A workshop on RC questioning techniques and tasks and activity development was then conducted. This research intervention emphasized the application of the Cogaff taxonomy in dealing with question and task construction. The workshop (details in Appendix 2.2) included the following topics:

    i. Previous studies on questions/ questioning techniques

    ii. Reports of Pilot studies carried out at Manchester, and Birmingham universities.

    iii. The Cogaff Taxonomy; how it can be applied in the construction of questions and tasks (1 hour).

5. Immediately following this workshop, the subjects constructed RC questions and tasks for the second time on a different text. The number of questions they were required to formulate remained the same (at least seven) and again they had to prepare as many tasks as they deemed fit (1 hour).

6. The subjects responded to the questionnaire for the second time. The main purpose was to see if there were any differences in how they perceived RC question and task design after being exposed to the taxonomies of questions and cognitive and affective domains in dealing with reading comprehension texts and instructions (20 minutes).

       Each subject was required to work individually in handling the tasks (question and activity designing unlike the pilot study where this was done in groups) and responding to the questionnaires during the workshop session. This was to encourage a high quality of individuality for each might have different ideas about issues related to RC questions and tasks, and how they ought to be designed. Each subject was identified by a number.

Operation 1 (Group 2): The Control Group - UPM

       Twenty students reading the same B.Ed TESL Course participated as a control group. The same procedure was adopted in the workshop as with the treatment group

except that there was no intervention stage. These students were selected because they had already finished all the reading courses offered in the TESL programme. Like the experimental group, they had to work individually in producing the tasks. As the session for the control group started at the same time as the experimental group (to avoid possible communication between groups), it was conducted by a colleague of the researcher after a careful briefing session. The session started with a RC text. Subjects were given the same instructions as the experimental group. After a fifteen minutes break they were given the second RC text and asked to do the same thing as they had done earlier. No input was provided before their second session.

As stated, it was impossible to get students from the same cohort to be in the control group session due to the limited intake of final year students. However, both groups were assumed to be equally competent concerning issues regarding Reading courses; both had completed the Reading course in Semester three.

Operation 2 -Stage 1(i): Malaysian Secondary School Teachers

Subjects: Classroom teaching observations were carried out on six teachers teaching English as a subject in the upper secondary classes from two schools in Malaysia viz. Tunku Kurshiah Secondary School (TKS) and Dato' Abd Samad Secondary School (SMDAS). Both schools, located in N. Sembilan, were noted for their academic excellence in such major examinations as PMR (Lower Secondary Assessment Examinations) and PMA (Upper Secondary Assessment Examinations). Ranked among the top five secondary schools in the state for three consecutive years (National Education Reports, 1992, 1993, 1994), the two schools are highly regarded in terms of quality of teaching and learning. Although they cannot be held representative of schools as a whole, they are arguably centers of excellence which may be characterized by, among other things, good teaching. The schools are regarded by many as schools embodying good practice.

Procedure of teaching observations

1. Teachers were given a reading comprehension text one or two days prior to the scheduled observation. They were required to prepare relevant and authentic questions and activities based on the text to be used for classroom teaching within a normal teaching period (80 minutes). Questions and activities designed were documented in a standardized lesson plan.

2. The session was tape-recorded. The observation focussed on:

   a. the types and levels of questions asked by teacher (oral and written),

   b. the types and levels of tasks and activities designed by teacher.

   c. any correlation between questions and tasks designed by teacher.

3. A short interview was conducted with the teachers at the end of the lesson. Information elicited included:

   a. any principles or knowledge applied by the teacher in designing the questions and tasks used during the lesson.

   b. The teacher's awareness of the relationship between questions and tasks.

4. A workshop session was conducted at TKS (Tuanku Kurshiah School) in the following week. The teachers in the experimental group participated in a workshop on "RC questions and tasks design using Cogaff Taxonomy". With the support of the Principal of TKS, almost all the language teachers in the school willingly participated. A similar input and emphasis as the workshop carried out with the UPM treatment group was presented and discussed. The session lasted for about 2 hours.

5. Teachers involved in the experimental group were then given the second RC text from which to plan their next RC lesson. Steps 1 and 2 were repeated in the posttest.

Operation 2 - Stage 1(ii): The Control Group (School Teachers)

Two teachers from a third school, Tuanku Muhammad School (TMS) (Both TESL graduates) willingly participated as the control group for the trained teachers. The two teachers were asked to design RC questions and tasks from a reading text repeating the treatment and procedure as carried out on the UPM control group. Without any input from the researcher they then had to plan the second lesson (after the first was constructed) and prepare seven RC questions and tasks based on the second RC text.

Field and Pilot Studies: Workshop emphasis

The workshops conducted in both pilot and field studies emphasized utilizing questioning taxonomies with particular reference to the Cogaff taxonomy in designing a set of varied reading comprehension questions to develop different levels of comprehension. The comprehension levels are basically *knowledge* (literal or recall*)*,

comprehension, application, analysis, synthesis, evaluation and *affective* (Kissock & Iyortsuun, 1982). The questions were then used as the basis for devising reading comprehension task-based activities. The task-based activities designed would involve different levels of knowledge and information according to the kinds of questions they were based on, "as questions are normally used to generate two different functions" (Grellet, 1981: 5). These functions are:

1. To clarify the organization of the passage. In this context, questions are directed towards determining the function of the text, the general organization (e.g. argumentative), the rhetorical organization (e.g. contrast and comparison), the cohesive devises (e.g. link words), and intrasentential relations (e.g. derivation, morphology, hyponymy), (see Grellet, 1981).

2. To determine and clarify the contents of the passage. In this context, questions are used to clarify the contents according to whether they are directed at plain facts in the text (literal/recall), implied facts (inference), deduced meaning and evaluation (ibid., 1981: 5). The functions can be extended to broader taxonomic levels; knowledge, comprehension, application, synthesis, analysis, evaluation and affective domains as suggested by such taxonomies as Bloom et al's (1956), Taba's (1966), or Barrett's (1972). Devising reading comprehension tasks/activities of this type is the major focus of the study. In all measures taken into consideration in the designing of tasks and activities, the affective aspect of learning was equally emphasized.

The term 'taxonomy', as used for questioning, cognition and reading, refers to Bloom's 'taxonomy of educational objectives' and to those of Barrett (1979), Taba (1966), and Krathwohl et al.,(1964). Other taxonomies like TPQI (1968) (Teacher-Pupil Question Inventory) and FTCB (1968) (Florida Taxonomy of Cognitive Behaviour) were also considered.

Operation 2 (Stage 2) - Documentary study on questions and tasks/ activities used in text books.

Two prescribed text books were examined. They feature Reading Comprehension texts in all units and are used in the secondary schools involved. Attention was focused on the kinds of questions, tasks and activities used with the

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texts. These were critically analysed in terms of kinds and levels of the Cogaff Taxonomy.

Aims and objectives

The aims and objectives of Operation 2 (phase 2) are as follows:

1. To examine and determine the kinds and levels of questions, tasks and activities used in the regular texts in terms of levels of thought processes categorized according to the Cogaff taxonomy.

2. To investigate any correlations between the types of questions and tasks/activities used by teachers in classroom teachings with those found in text books.

Details of document: Prescribed reading texts

The two school text books are: The New Integrated National Curriculum for Secondary Schools, English Forms Four and Five. They were the recommended text books used in the academic zone of the secondary schools involved in the study. As prescribed texts used in the upper secondary schools they have the Ministry of Education's approval. They were written strictly based on the Ministry's outline of contents as specified by the KBSM currently being implemented in Malaysia.

3.3 Time schedule

The schedule of the data collection at UPM and the secondary schools is shown in figure 3.3.

Figure 3.3 Research Time Schedule

TIME SCHEDULE	
July 5	Fly to Malaysia
July 7 - 14	Arrangement with UPM/schools
July 17 - Aug. 11	Field work at Schools
Aug. 14 - Aug. 31	Field work at UPM.
Sept. 1 - Sept. 8	Documentary study(School text books)
Sept. 10	Back at Leicester

The field studies in the schools and UPM were personally carried out by the researcher from July 17 to August 31, 1995. The time spent in schools was a little longer that at UPM for several reasons: firstly, all schools were located at about 5 miles in distance from each other. Secondly, the lone researcher could visit only one school at a time and the teachers had to be observed for at least four times each during their English lessons, before the best was taken for consideration. The selection was carried out based on the RCQs and RCTs produced by the teachers in their lesson plans used during the classroom teaching. It was also carried out by reviewing the lessons which were video-taped. Thirdly, it was impossible to cover two or three teachers from different schools in one single day due to clashes in the timetables of English lessons. The session at UPM involved easier access to all the students and meetings could easily be arranged. The sessions for the experimental groups and the control groups were carried out at the same time in order to avoid leaking information, so the session for the control group was conducted by a colleague. This was possible as the session for the latter was carried out without the need of any input/intervention from the researcher and the colleague was appropriately briefed beforehand. In the final week of the field study the researcher returned to the schools to obtain the prescribed texts and gain further information about RCQs and RCTs used in classroom teaching from all the teachers involved in the study. Overall, the researcher was pleased with how the sessions, discussion and workshops had been carried out throughout the fieldwork session. The support from all the subjects and officials was very encouraging.

3.4 Methods of analysis of data

The RCQs and RCTs formulated were first analyzed according to different levels of domains or thought processes by using the Cogaff taxonomy. The data were then analyzed by using SPSS, version 6.0 for Windows. Both quantitative and qualitative means of data analysis were employed. Non-parametric tests (the Mann Whitney and Wilcoxon-test) were used as the samples were both independent and related: the *EM (ex-matrics)* and *ET (ex-teachers)* are 'independent samples' while 'related samples' are presented by the *pretest/posttest samples*. Descriptive analysis was used in analyzing the subjects' responses in the questionnaires which provide subjective information on issues relevant to the study.

3.4.1 *Quantitative analysis*

In the following statistical tests, SPSS Version 6.0 for Windows was used to analyse the data:

1. The non-parametric, Mann Whitney and Wilcoxon Match-Pairs Signed-Ranks (Norusis, 1988,) were used in determining the levels of significance of all variables (dependent) with related samples (e.g. pretests vs. posttests) and independent samples (e.g. EM, ET and TT). This was done in order to determine:

i. if there are any significant differences between the levels of questions in the pre-tests and those in post- tests designed by the subjects under two different conditions;

ii. if there are significant differences between the levels of tasks and activities in the pre-tests and those in post-tests formulated by the subjects under two different conditions.

iii. The Pearson Correlation Coefficient was used to determine any significant correlation between pretest RCQs and pretest RCTs, posttest RCQs and posttest RCTs. This measure is necessary to determine the relationship between RCQs and RCTs.

2. Descriptive statistics were used to determine the means and standard deviation of dependent variables used in the study: Ex-Matrics, Ex-Teachers, Trained-Teachers, and Control-groups.

3.4.2 *Qualitative analysis*

The descriptive analysis was used in analyzing the subjects' responses to all subjective questions in the questionnaires. The responses, grouped according to different themes and types, were analyzed according to thematic analysis.

CHAPTER FOUR
RCQs/RCTs AND THE COGAFF TAXONOMY

4.0 Introduction

This chapter outlines details of the two main dependent variables addressed in the study; RCQs (*reading comprehension questions*) and RCTs (*reading comprehension tasks*). The Cogaff Taxonomy, the framework of thought processes used in the design and measurement of the two variables, is also discussed in this chapter. The two variables have been explored in the experiments carried out in the **pilot** and **field** studies as they are directly related to the two major aims of the study as stated in 1.4 (aims and objectives/research questions). Apart from looking at each variable separately, one of the objectives of the study is to determine if well-defined RCQs (according to different domains of thought processes) could be used as the basis for constructing RCTs of the same quality and merit. This aim is particularly in line with the wider educational applications of Bloom's taxonomy as suggested by Bloom (1994: 7): "The taxonomy does not impose a set of teaching procedures, nor does it view objectives as so detailed and restrictive that a single teaching method is implied. Rather, a teacher has a wide range of choices in making instructional decisions related to objectives associated with each level of the taxonomy". This implies that, apart from the popular practice that RCQs are normally constructed based on RCTs as portrayed in many texts used to teach Reading Comprehension lessons, the process might be reversed where the RCQs are made as the basis of RCTs construction. The RCQs with different *levels of thought processes (LOTPs)* determined by using the *Cogaff* taxonomy, will be used as the basis to construct the RCTs with similar *LOTPs*. Further, the Assessment of RCQs and RCTs using the taxonomy is outlined here and the chapter is summed up by drawing out implications of the approach for classroom instructions.

4.1 Reading Comprehension Questions (RCQs)

Introduction

'Let us ... make the study of the art of question-asking one of the central disciplines in language education'. Thus Postman (1979: 140) emphasizes the importance of question-asking that revolves around the life of a teacher and a student for he strongly believes that , 'All our knowledge results from questions, which is another way of saying that question-asking is our most important intellectual tool' (Ibid.,1979: 140). This is line with the present study which acknowledges that, "Teachers know that whatever the plan, strategy or technique, effective teaching depends primarily upon the teacher's skill in being able to ask questions which generate different kinds of learning" as pointed out by Kissock and Iyortsuun (1982: 3). Yet, a wide range of observation and evidence suggests that the use of low-order questions in classrooms still predominates and the use of higher-order questions to develop thinking is being neglected (Postman, 1979; Kissock and Iyortsuun, 1982; the Ministry of Education Malaysia, 1990; Brown and Wragg, 1993; Mustapha, 1995 and many others). This lack of the higher-order questions from teachers could be attributed to a number of factors:

i. They have not been exposed to the general idea of designing higher-order questions during their teacher training despite the presence of many taxonomies of questions and tasks (as in Bloom et al. (1956); Taba (1964); Sanders (1969); Barrett (1972); Irwin (1991); and others).

ii. The methodology courses for training teachers specifically in the teaching of reading did not stress the idea of how a taxonomy of questions or educational objectives can be applied in designing RC questions and tasks despite the availability of different taxonomies of questions which are widely cited in introductory books on lesson planning for teachers (Tiedt et al, 1989; Morgan and Saxton, 1991; Perrott, 1982; Kissock and Iyortsuun, 1982). Such a claim seems justifiable when Davis and Tinsley (1967), Bartolomy (1967), and Gall (1970) suggested nearly 30 years ago that part of the reason for the predominant tendency to use recall questions could be

attributed to the lack of effective teacher training programmes. The teacher training institutions in Malaysia (UPM and the various teacher-training colleges) for instance, have not suggested any use of a taxonomy of questions in RCQ and RCT construction in the entire reading syllabus, although course organizers must surely be aware of the importance of such taxonomies for classroom instruction since it is now stressed in the KBSM syllabus (refer to Chapter 1). One possible way of solving this problem is by reemphasizing the use of Bloom's taxonomy in designing thought provoking questions and tasks as stipulated in the KBSM syllabus (Pukal Latihan KBSM, 1990).

Over the years, questions have been consistently recognized as a significant means by which teachers help students to construct meaning (Morgan and Saxton, 1991). Postman (1979) suggested that questioning was as much a language art as reading and writing and he was 'astonished' that as such it continued to be neglected. 'In the development of intelligence', he writes, "nothing can be more "basic" than learning how to ask productive questions" (Postman, 1979: 140).

In acknowledging the usefulness of the Bloom taxonomy in promoting higher-order thinking, Morgan and Saxton (1991:9) affirm that, "When one considers the development of thinking skills one turns for guidance to what is commonly known as 'Bloom's Taxonomy'. In fact, the full title is *The Taxonomy of Educational Objectives: The Classification of Educational Goals, Handbook 1, Cognitive Domain* by Benjamin S. Bloom and David R. Krathwohl and others. Acknowledging the Bloom taxonomy as an effective tool to teach **critical thinking** that may engage students in higher-levels thinking skills is emphasized by Beyer (1992: 30-31) when he says,

> *Bloom and his colleagues, it may be recalled, identified only six key operations, ... Reasoning is the lubricant by which the various processing operations of interpreting, analysis, synthesis, and evaluation are operationalized and executed. By reasoning inductively from many specifics, one can infer broad meanings such as generalizations, principles, and the like. By reasoning deductively, one can move from general principles to specifics ... The process involved in such reasoning is used in many **critical thinking** operations including, for example,*

*identifying unstated assumptions, bias, and author's frame of reference
or point of view. Not only are these (and related reasoning skills) basic
processing operations, they are also used in many other **higher-level
skills** to move us from accepted truth to new one.*

Bloom's taxonomy has had considerable significance in clarifying the processes of logical thinking (Morgan and Saxton, 1991; Kissock and Iyortsuun, 1982; Perrott, 1982; The Ministry of Education, Malaysia (CDC), 1993). Morgan and Saxton (1991: 9) with reference to the Bloom taxonomy summarize that, "This taxonomy suggests that you cannot value or judge something until you (a) know the facts, (b) understand the facts, (c) can apply the facts, (d) can take the facts apart and (e) put the facts together in such a way that new perspectives are revealed". Acknowledging the importance of attributes of *feelings* and *attitudes* in any cognitive processes of thinking and problem solving, Krathwohl *et al.* (1964) suggested the affective domain should be included in categorizing the educational objectives. The affective domain includes; *receiving, responding, valuing, organizing a value set,* and *characterizing* by value complex.

Based on the integration and adaptation of the attributes of both *cognitive* domains as defined by Bloom et al. (1956) and *affective* domains by Krathwohl et al. (1964), the *Cogaff Taxonomy* has been created (it abbreviates *Cognitive-affective* taxonomy). The Cogaff taxonomy is used in this study as a means of generating and assessing the RCQs and RCTs formulated by the subjects during the pilot and field studies. The Cogaff Taxonomy suggests the marriage of the cognitive domains, that are concerned with the intellectual understanding, with the affective domains which are concerned with emotions, attitudes and values (Krathwohl et al., 1964, Kissock and Iyortsuun, 1982). The *Cogaff* taxonomy uses and applies all attributes of the *cognitive* (Bloom et al., 1956) and *affective* (Krathwohl et al., 1964) domains suggested in the original source of references in categorizing teachers' RCQs and RCTs. It has to be emphasized that the Cogaff taxonomy is not a new taxonomy but a combination, reproducing Bloom et al. (1956) and Krathwohl et al. (1964), in the present author's effort to encourage teachers to formulate RC questions and tasks.

4.1.1 Rationale for integration of cognitive and affective domains

The two domains of questions; *cognitive* and *affective*, are used to describe the types of questions and tasks teachers should formulate and ask. The *cognitive* questions/tasks are concerned with intellectual understanding, while the *affective* questions/tasks are concerned with emotions, attitudes, and values. Within each domain there is a hierarchy of levels that represents different types of thought or valuing processes (Kissock and Iyortsuun, 1982). These two classification systems, or taxonomies, are the pre-requisites on which questions and tasks are presented and assessed in this study. The integration of the two domains is strengthened by the following reasons:

1. Although evaluation is placed last in the *cognitive* domain because it is regarded as requiring to some extent all the preceding, it is not necessarily the last step in thinking or problem solving. It may lead to the *affective* domain, for according to Bloom (1956: 185),

> *Evaluation represents not only an end process in dealing with cognitive behaviors, but also a major link with affective behaviors where values, liking and enjoying are central processes involved.*

This would be one reason for placing '*affective*' after '*evaluation*' in the integrated taxonomy.

2. The cognitive and feeling aspects of mental development are ultimately inseparable in any holistic view of education. It is therefore deemed important to include the *affective* domain in considering behaviors which relate to values, emotions and feelings, as Furst (1994: 32) emphasizes,

> *...one can reasonably argue that the **cognitive and feeling** sides of mental life can neither be conceptually nor practically separated.*

3. As it is not possible to separate the cognitive aspect from feeling, it is also not possible to separate 'knowledge from values' for according to Furst (1994), how could one separate values from knowledge or vice-versa?,

> *...the distinction creates educational and philosophical problems by separating the world of **knowledge** from the world of **values.***

(ibid., p. 32)

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Values are the necessary ingredients to educate students to make judgements, decisions and solutions to problems that relate to moral obligations in students' everyday lives. Values are thus part of Malaysian moral education where it is made compulsory in the KBSM that seventeen 'noble values' have to be integrated across all subjects in the school curriculum during the teaching and learning process[*] (Md. Jadi, 1997). Moral education is, arguably, inseparable from other aspects of the curriculum. In fact, separation of values from knowledge runs the risk that in future students will be less able or unable to integrate values and moral issues into their personal or professional lives (Morgan and Saxton, 1991; Kissock and Iyortsuun, 1982; Krathwohl 1964; Barrett, 1972).

4. "Students and teachers bring their experiences and feelings into the classroom and those are vital components in the process of thinking for you just can't separate feelings from thinking" (Morgan and Saxton, 1991: 17). This view on the integration of cognitive and affective domains of educational objectives is strongly supported by Britton (1970: 217). In an influential book, he argues: "The real danger it seems to me...lies in imposing a disjunction between thought and feeling, between cognitive and affective modes of representation....We need to recognize the value and importance both of discursive, logical organization and at the same time, that of undissociated intuitive processes".

5. In Malaysia, the passing of the Education Bill, 1995, reinforced the position of these values and the values-related subjects in the national system of education. The Education Bill 1995 also states that,

> ...education in Malaysia attempts to provide a balance between knowledge and skills on one side and in the inculcation of values on the other. ... It is important to note that Malaysian education provides for the teaching of the two kinds of values.

<div align="right">Md. Jadi, (1997: 96)</div>

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[*] The 17 noble values are: 1. Kindness 2. Self-reliance 3. High-principles 4. Respect 5. Love 6. Justice 7. Courageousness 9. Physical cleanliness 10. Honesty 11. Industriousness 12 Cooperation 13. Moderation 14. Thankfulness 15. Rationality 16. Socialization 17. Citizenship (latest addition).

The above views are among the justifications that stress the importance of the bonds between cognitive and affective domains of thought processes in any effort to create higher-order thinking and healthy feelings and attitudes among pupils.

Affective learning is demonstrated by behaviors indicating attitudes of awareness, interest, attention, concern, and responsibility, the ability to listen and respond in interactions with others, and ability to demonstrate those attitudinal characteristics or values which are appropriate to the test situation and the field of study. This domain relates to *emotions, attitudes, appreciation, and values,* such as *enjoying, conserving, respecting,* and *supporting* (Kissock and Iyortsuun, 1982).

4.1.2 Types of Questions

As already cited, two domains of questions: cognitive and affective; are used to describe the types of questions teachers ask. First, the *cognitive questions* hierarchically arranged under the order of levels of thought processes comprise; *knowledge* or *recall* (also referred to as *literal*), *comprehension* (including *translation* and *interpretation*), *application, analysis, synthesis,* and *evaluative* (Bloom et al., 1956). These different levels of thought processes represent a range of possible educational goals or outcomes in the cognitive area (Anderson and Sosniak, 1994). Second, the *affective questions* include *receiving, responding, valuing, organizing a value set,* and *characterizing* by value complex (Krathwohl et al., 1964).

4.1.3 Cognitive domain questions

The cognitive domain is in practice the most commonly used of the two domains (Kissock and Iyortsuun, 1982). Attention is directed at the student's ability to use ideas and information that are presented. This domain is not concerned with attitudes, skills or actions. It is concerned with the knowledge and understanding that is needed for attitudes (affective), skills, or actions to be demonstrated (ibid., 1982). The cognitive domain taxonomy is presented in table 4.1.3, which gives a sample question for each level, and describes the different thought processes involved. It shows how the taxonomy is hierarchical

in that it is not possible to answer higher level questions without being able to answer questions at the lower levels. It also shows how questions on all levels of the taxonomy can be asked on any one topic (Op cit., 1982). Such a topic could be orally presented, but in the present research the topics are located in reading texts.

The lower levels of the taxonomy (i.e. *knowledge* or *recall* or *literal*) are characterized by *convergent* thinking (Bloom, 1956). Questions at these levels ask about information that has been presented and usually ask for a correct answer. At the knowledge level, learning is the same as remembering. There is no attempt to see if the information which is remembered is understood (Kissock and Iyortsuun, 1982). At the comprehension level, understanding is demonstrated by rephrasing ideas and making comparisons (Bloom, 1956).

In the next three levels: *application, analysis, synthesis*, learning is demonstrated through *divergent* or *higher-order* thinking (Bloom, 1956). Questions at these levels require use of any information available to the individual and answers that have many parts or more than one correct answer[*] (Kissock and Iyortsuun, 1982). The use of information is demonstrated through analysis of situations and information, and creation of new ideas or objects. The highest level of the cognitive taxonomy, *evaluation*, requires use of criteria of making judgments (Anderson and Sosniak, 1994). The cognitive domain taxonomy is presented as in table 4.1.3.

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[*] This has a wider implication for the system of assessment of academic examinations in schools in Malaysia (PMR - the Lower Secondary Examination, and SPM - the Upper Secondary Examination) where a major portion of the examination questions are scored based on objective scoring system (as discussed in the significance and implications of the study in Chapter One).

Table 4.1.3 Cognitive Taxonomy (from Kissock &Iyortsuun, 1982: 11)

Taxonomy Level	Sample Questions	Key word	Ability demonstrated	Type of thinking
Evaluation	Using the criteria that at least half of all questions in a class session should be asked by students, how effective was your lesson?	Judge	Forming judgments	Evaluative/ Judgmental
Synthesis	What can we do to encourage pupils to ask more questions in the classroom?	Create	Using information	Divergent
Analysis	Why don't students ask more questions in the classroom?	Why		
Application	In your teaching field what one question could you ask that would be discussed by all students in the class?	How		
Comprehension Interpretation	Which group of students ask more questions in class?	Compare	Understanding	Convergent
Translation	What words can you use to describe your class?	Restate		
Knowledge	How many pupils are in your class?	What	Repeating information	Remembering/ Recall

It is evident that the taxonomy is, by definition, ordered. This ordering is from lower to higher with the built-in assumption that higher elements depend on lower ones and, to some extent, are more highly valued. Such assumptions might be questioned: evaluation clearly includes personal judgements and decisions but these could be considered biased towards a somewhat westernized 'individualism' which does not take account of 'collectivist' views (Triandis, 1995) in which individual opinion is largely subordinated to that of recognized authorities or to group views. In some cultural contexts this distinction is important in the classroom (Cortazzi and Jin, 1996).

4.1.4 Affective domain questions

Krathwohl et al. (1964) were among the pioneers who introduced the idea of the affective domain in educational objectives. Their categorization of the affective domain includes; *receiving, responding, valuing, organizing a value set,* and *characterizing by value complex.*

Morgan and Saxton (1991: 18) call an *affective* domain question a 'question of feeling'. This definition is an endorsement of Bolton's (1979: 31)

view which claims that, "Learning has to be felt for it to be effective.... it is this essential feeling level that is often either not recognized or ignored by teachers. Only when work is at an experiential feeling level can a change of understanding take place". The affective domain is important in education. It focuses attention on the attitude changes that are stated in course objectives. There is also a close relationship between the cognitive and affective domains, as affirmed by Bloom et al. (1956), Krathwohl et al. (1964), Furst (1994), Morgan and Saxton (1991), and Kissock and Iyortsuun (1982). For every affective question or objective there is a cognitive part. For each cognitive question or objective there is an attitude that is desired (Kissock and Iyortsuun, 1982). Affective and cognitive domains are, in this view, complementary but not alternatives; both are indispensable. With regard to attitude development, in asserting the link between the cognitive domain with the affective one it is possible for teachers to learn about questioning by reading and understanding any taxonomy of questions, but if that knowledge has no influence or effect on the teacher's attitudes there is less likely to be change in behaviour and the goal of these taxonomies (for students to develop the full range of levels in both domains) will not have been achieved.

Table 4.1.4 presents an example of the affective domain taxonomy. For each taxonomy level, the valuing process, a sample question, and the action taken are presented. It is often difficult to distinguish exactly the five levels of this taxonomy from each other, especially when trying to classify a particular question or action (Kissock and Iyortsuun, 1982) and this is a further possible criticism. As suggested in this study, teachers' main concern should be with understanding the general characteristics and actions that represent each of the levels in developing and demonstrating attitudes. The important first step will be for teachers to consider including an affective dimension in questions and tasks. Making use of the full range of the affective taxonomy might come later. The categories are presented below, in table 4.1.4.

This taxonomy is based on increasing stages of accepting or believing in an idea. At the lowest level, *receiving*, the person simply becomes aware of an object or idea and pays some attention to it. At the second level, *responding*, a

Table 4.1.4 The Affective Taxonomy

Taxonomy Level	Valuing Process	Sample question and response for each level	Action
Characterizing by value complex	The value or idea becomes part of the individual's life and is acted on naturally without it being thought about	The school administration decides that lecturing is the only useful teaching strategy and that teachers must lecture to all their classes. What would you do? (You would try to change their mind or even look for a new teaching position)	As a natural part of all planning and interaction, questions are used to challenge students to think at higher levels and consider their values.
Organizing a value set	The idea is consciously added to values of beliefs already held and made to fit them	How does your belief that students should ask questions fit with the belief that only the teacher should lead or direct the class? (It is better to be flexible and adjust the lesson to student needs and interests)	Lessons are planned that include higher-order questions and allows students the chance to ask questions.
Valuing	A commitment is made to the idea. It is seen to have value.	Which teaching strategy should teachers try to improve first: lecturing, questioning, or writing examinations? (Questioning)	Other teachers are told that questions are important and they should try to improve their use of questions in class.
Responding	Further information is actively sought.	Are you trying to learn more about questioning in the classroom? (Yes)	The rest of this text is read without being assigned because the ideas are of interest and seen as being helpful.
Receiving	Become aware of an idea and willing to learn about it.	What is the topic presented in the text? (Using questions in teaching).	A chapter on questioning is read and an awareness of the role and effect of questioning in teaching is developed.

Source: Kissock and Iyortsuun (1982: 13-14)

reaction is made to the idea. The reaction can come from being directed to react when a teacher asks a class to describe their feelings about something they have seen, or the reaction can be made voluntarily. At the third level, *valuing*, the idea is accepted. It is seen as being valuable and worth arguing for or defending. At the *organizing* level the individual makes the new value fit with already held values and beliefs. As a result of thinking at this level the values a person holds are made consistent with each other. The final stage, *characterizing by value complex*, represents the point at which the value becomes an accepted part of a person's life. The value, and its effect on actions, are no longer consciously considered because it has become an integral part of the individual.

The process of selecting, accepting, and integrating values into our lives takes a long time. It is not something which is likely to be accomplished within a particular course or unit of instruction. Teachers can: present students with values to consider for their own lives; demonstrate desirable values by acting on

them in our lives; question the values students hold and challenge them to consider what they believe; or try to avoid discussing values at all. Because people act on the basis of the values they hold and believe in, it is difficult, if not impossible, to avoid values issues completely when teaching. As a result it is important to consider the values that are directly or indirectly presented to students and the extent to which teachers expect our students to act on them.

As Kissock and Iyortsuun (1982) themselves admit it is often difficult to distinguish exactly the five levels of this taxonomy from each other, especially when trying to classify a particular question or action. In the present study, the affective domain is not characterized explicitly according to the five levels as originally suggested by Krathwohl (1964) in the categorization of the subjects' RCQs or RCTs. Rather, the affective level is treated as one main body of category representing all the five values in categorizing the RCQs or RCTs. The affective domain (i.e. level 7 in the Cogaff taxonomy) is applied in categorizing any RCQ or RCT that belongs to any of the five categories.

4.1.5 Cognitive-Affective (Cogaff) Taxonomy

The Cognitive-Affective, referred to as the Cogaff Taxonomy in this study, as already stated, is the integration of Bloom et al's cognitive (1956) and Krathwohl et al's (1964) affective taxonomies using one general category for 'affective'. In the pilot and main field studies, the Cogaff taxonomy was utilized in several ways;

First, it serves as a measuring tool for all the RCQs and RCTs produced by the subjects of the studies. Some examples of how the assessment is carried out are shown in table 4.3.

When applied to questioning, the cognitive and affective taxonomies serve a number of useful purposes (Kissock and Iyortssun, 1982). First, they direct a teacher's attention to the behaviour changes he/she wants to see in pupils as a result of instruction. Teachers who can use the taxonomies with confidence can easily determine the intellectual and affective level of their instruction by classifying the questions they ask on examinations, homework, and during class discussions.

Second, their use develops a sensitivity to forming different types of cognitive and affective questions to elicit different kinds of thought processes by presenting a framework or set of categories on the basis of which tasks can be prepared,

Third, they can be used in evaluating instructional materials, like textbooks. Realising the nature of questions presented in texts and other instructional materials enables teachers to select those that will most directly encourage pupils to develop and practice critical thinking abilities (Kissock and Iyortsuun, 1982). Such evaluation can be furthered so that teachers familiar with the taxonomy can extend materials, e.g. by formulating their own questions of types not asked in the original. The evaluation of instructional materials using the Cognitive-affective (Cogaff) taxonomy carried out in this study shows how the taxonomy might be needed to classify the different types of questions/tasks according to different levels of thought processes as part of a materials evaluation process. As it is admittedly sometimes difficult to exactly distinguish the five levels of the affective taxonomy from each other, the classification of RCQs or RCTs according to *affective* domains, in this study, is carried out based on general characteristics and actions that represent or demonstrate attitudes and feelings.

Fourth, they encourage students to participate actively in the learning process by raising and responding to questions requiring higher levels of thinking and valuing.

4.1.5a Validity of the Cogaff taxonomy

The validity of the Cogaff taxonomy as an instrument to be used to design and assess RC questions and tasks is based on the validity of the cognitive and affective taxonomy propagated by Bloom et al. (1956) and Krathwohl et al. (1964) respectively. Hence, it is based on the following assumptions which are supported by evidence:

1. That the hierarchy given in Bloom's taxonomy of Educational Objectives: Cognitive domain is valid. The work of Ayers (1966), Hunkins (1966),

Kropp et al. (1966), Scriven (1967), Stanley and Bolton (1957) support this assumption, and give empirical evidence to substantiate the hierarchy;

2. That the levels of thinking are reflected by the levels of questions posed verbally or in writing that take place in the classroom as established by Flanders (1963), Aschner et al. (1962), Withall (1951), Mitzel and Rabinowitz (1953).

3. That congruent levels of RC tasks can be designed based on lower and higher-order domains of thought processes as indicated in the work of Tiedt (1989), Kissock and Iyortsuun (1982), Morgan and Saxton (1991), Perrott (1982).

4. That the taxonomy can be used as a basis for making distinctions between lower-level and higher-level thinking in the classroom after having studied a large number of problems occurring in comprehensive examinations (Bloom et al.,1956).

The Cogaff taxonomy is presented in table 4.1.5a.

Table 4.1.5a The Cogaff (Cognitive-Affective) Taxonomy

Cogaff Taxonomy				
Taxonomy level	Summar/Definition Sample question	Key word	Ability demonstrated	Type of thinking
7.0 Affective	Questions at this level ask pupils to respond with a statement of feeling, emotion, attitude, and opinion without a standard appraisal. *Describe your feeling about the Kobe incident if you were the son/daughter of one of the victims?*	Feeling, emotion, opinion, attitude	Expressing feeling, emotion, opinion or attitude	Expressive/ thoughtful
6.0 Evaluation	Questions at this level ask pupils to use criteria to make and justify judgments about something. *Is the group's conclusion consistent with the results of their experiment?*	Judge	Forming judgements	Evaluative/ judgemental
5.0 Synthesis	Synthesis questions ask pupils to be creative by putting a number of ideas or objects together in a way that is unique and new to them. There are many different solutions and no right answers. *What plan would you draw up to advise governments in West Africa to check the spread of the desert?*	Create		

4.0 Analysis	Questions at this level direct pupils to determine the parts of a problem, solution, or idea and show how they are related. *Why did the students who farmed that plot work so hard?*	Why	Using information	Divergent
3.0 Application	Questions at this level require pupils to demonstrate the use of ideas. They must apply their knowledge and understanding to new situations and use it to solve problems. *Using the procedures discussed in the text: How would you solve the following problems?*	How solve		
2.0 Comprehension	A comprehension level question requires pupils to express ideas in their own way and demonstrate understanding of a communication, idea, or object. Two sub-categories are translation and interpretation. *What is meant by the word `tragedy' as described in the text?*	Understand		
Translation	Pupils are to rephrase or restate an idea without changing its meaning. They are not expected to explain or use it. *What does the rule mean when it says: `A player should not wear anything which may cause injury to another player?*	Restate	Understanding	Convergent
Interpretation	Pupils relate and compare things or ideas to one another and explain or summarise a communication. *How is the Japanese flag different from the British flag?*	Compare		
1.0 Knowledge	A knowledge level question requires pupils to recall from memory previously learned facts, concepts, generalisations, and theories. *Who is the boy described in the story?*	Who What Where When	Repeating information	Remembering/ recall

Note: Each question/task asked/designed by a teacher or a pupil is to be scored in but a single category.

Each category of domains of the Cogaff taxonomy is further elaborated in the succeeding paragraphs:

4.1.5b Cognitive/affective domains

Level 1: Knowledge/Literal/Recall (Remembering) - (LOTP: 1.0)

The knowledge question, as the first category of the cognitive domain, requires students to remember, recall and repeat from memory previously learned facts, concepts, generalizations, and theories. The process of answering normally involves *lower-order thinking processes* such as: remembering, memorizing, recognizing, recalling identification and recall of information (Kissock and Iyortsuun, 1982). The levels of thought processes are convergent and less useful in encouraging other kinds of thinking. Some of the thinking skills that may be involved include:

> *recalling   remembering   recognizing   recollecting   defining identifying*

Some words often associated with knowledge or recall questions include:

define   recall   remember   where   who   when   recognize   what   which

name   list   tell   how many   how much   identify

The question is often characterized by such key words as:

> Who?   What?   When?   Where?

Examples of questions may include;

- o   How many decimeters are in one meter?
- o   What did you eat yesterday?
- o   With what material is your father's house built?
- o   Who is the author of the story we just read?

There is one thing in common with the above questions. To answer them requires remembering and giving a piece of information. Some questions that belong to the same thought process can be more difficult to answer even though the answer to them has been learned earlier as in the following examples:

- o   In what year was the United Nations Organization founded?
- o   What is the formula for determining the volume of a sphere?
- o   How is the possessive form of 'it' spelled?
- o   In order of their occurrence, what national holidays do we celebrate each year?

These questions may be more challenging because they ask about theories, patterns, and procedures that are not part of our everyday experience.

Memorization of information as a primary goal of education as such should be discouraged although it may, of course, be one part of wider goals, as a step towards their realization. Nonetheless the knowledge or recall category is critical to all other levels of thinking and reasoning. Students cannot be asked to think at higher levels if they lack this fundamental information. Some memorizing of information is also required in order that a good citizen can perform a variety of tasks effectively. Nevertheless, teachers' over-use of knowledge questions in class discussion or when giving assignments and examinations leaves little or no opportunity for students to develop other higher thinking abilities (Kissock and Iyortsuun, 1982; Perrott, 1982; Tiedt, 1989).

Bloom et al., (1956) categorized the knowledge questions into three types: 1. Knowledge of specifics or knowledge of facts or information as referred to by Kissock and Iyortsuun (1982); 2. Knowledge of procedures; and 3. Knowledge of concepts, generalizations, and theories. Examples of questions of each category are as follows;

a. What are the titles of the sections of our country's constitution? (type 1)

b. Having learned/ discussed the concept of family in different cultures, what are the two different types of families in our village? (type 3)

c. Having seen the film on problem-solving in science, which of the following is considered the first step in problem-solving? (type 2)

Level II: Comprehension (Understanding) - (LOTP: 2.0)

A comprehension question calls for the demonstration of the students' ability to interpret, translate from one medium to another, describe in their own words and to organize and select facts and ideas (Bloom, 1956). It is asked with the purpose to help students to organize facts in such a way as to make sense of them. It is one way to recall or repeat an idea. This involves translation, interpretation, and extrapolation in a narrow or unilateral sense (Tiedt, 1989). These questions will require the pupil to select those facts that are pertinent in order to describe, compare or contrast (Perrott, 1982). This is considered as convergent or lower-order type for it does not encourage higher-

order thinking to take place (Bloom, 1956). Some of the thinking skills generated may include:

*rewording   rephrasing   comparing   explaining   interpreting,
describing   illustrating   associating   differentiating*

The questions are often characterized by such phrase as:

*What is meant by?   Can you rephrase?   Can you describe?
What is the difference?   What is the mean idea?*

Some words often associated with comprehension questions include:

*compare   contrast   differentiate   explain   rephrase   distinguish   describe
relate   interpret   rearrange   put in your own words   translate   predict*
(adapted from Perrott, 1982)

Examples of questions are as follows:

o Describe the kinds of problems faced by immigrants.
o Compare the duties of the House of Commons with those of the House of Lords.
o How did the life in the eighteen century differ from life today?

Sometimes comprehension questions also require pupils to translate ideas from one medium to another, for instance to interpret material presented in the form of graphs or tables, as in the following examples;

o From the above graph give the average annual rainfall for this country.
o Using the table of plant counts made in the years 1965-70, name the dominant species in 1968.
(adapted from Perrott, 1982)

It is important for teachers to remember that the information necessary to answer comprehension questions should already have been provided for the pupils.

Level III: Application (Solving)- (LOTP: 3.0)

Bloom (1956) suggested that the application questions are those that relate to problem solving and applying information to produce some result based on the use of facts, rules and principles. Similarly, Davis and Tinsley

(1968), look at the application question as the one that solves a realistic problem requiring the identification of the crucial issue or points and the selection and use of appropriate knowledge and skills. Kissock and Iyortsuun (1982) regard it as the level at which students apply information already learned to solve a problem, while Perrott (1982: 4) thus advises teachers, "When your purpose is to encourage your pupils to apply information they have learned in order to reach an answer to a problem, ask application questions. These questions require the pupils to apply a rule or process to a problem in order to determine the correct answer". Tiedt (1989: 63) further defines application questions as "The use of abstractions in particular or concrete instances, for example, general ideas, rules or procedures, generalized methods, technical principles, ideas, and theories which can be applied in other situations". This domain is the lowest level of the divergent or higher-order thinking skills (Bloom ,1956). Some of the thinking skills are:

> problem-solving   exampling   classifying   selecting   transferring
> applying   hypothesizing   relating

The question is often characterized by such phrases as:

> *Whom would you choose?   What would happen if…?*
> *If…how can…?   What examples   ?   How would you…?*

Words commonly found or implicit in application questions are:

> *apply   classify   use   choose   how   solve   design   calculate*
> *demonstrate   which   what is   build   employ*
>
> (adapted from Perrott, 1982)

Examples of *application* questions are as follows:

- o In mathematics, for instance, application questions are very common:
  If x = 2 and y = 5
  Then 3x + 4y = ?
- o In Geography when a pupil is asked to locate a point on a map by applying the definitions he has already learned of latitude and longitude.
- o In biology when a pupil is asked to apply what he has learned about populations by answering the question: 'When organisms are living densely packed in a small area are they more likely to compete if

they belong to one species than if they belong to many different species?'

- ○ In English language when a pupil is asked, 'Give three examples of adjectives', in order to apply the definition he has been given.

Other examples may include;

- ○ Based on the leaflet, select an agenda of important issues to be discussed.
- ○ Find out how the nation you represent has reacted to the issues selected.
- ○ Using the knowledge gained from the passage, how would you solve the problem faced by your community?

(adapted from Perrott, 1982)

Level IV: Analysis (Reasoning) - (LOTP: 4.0)

An analysis question, as gathered from Bloom et al.(1956), calls for the students to exercise their ability to subdivide something and to show how it is put together; to find the underlying structure of a communication; to identify motives; and to separate a whole into component parts. It entails the analysis of elements; analysis of relationships; and analysis of organizational principles. In the same light, Morgan and Saxton (1991: 13) confirm that the analysis question is applied when "we want our students to be able to support their arguments and opinions through organizing ideas into logical patterns of understanding". Perrott (1982: 44) suggests to teachers that, ', Explanatory (analysis) questions are asked when your purpose is to help pupils not only to remember and organize information, but also to analyze it for underlying reasons such as cause and effect'. Kissock and Iyortsuun (1982: 50) put it simply, 'The desire to know 'why' is the basis of the analysis level of thinking' while Tiedt (1991: 64) refers to it as, 'the breakdown of elements, relationships, and organizational principles into parts in order to clarify communication, organization, and effects, as well as their bases'.

Some of the thinking skills are:

analyzing determining the evidence drawing conclusions
reasoning logically reasoning critically inferring ordering

The question is often characterized by such words or phrases as:

Why? What if...? What was the purpose...? Is it a fact that ...?

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Can we assume that...?

Words often associated with analysis questions include:

*why   analyze   compare   recognize   contrast   draw   identify
infer   support   cause   distinguish   determine   evidence*
(adapted from Kissock and Iyortsuun, 1982: 52)

Examples of Analysis Questions

1. To identify motives, reasons and causes for a specific occurrence;

   o What factors influenced Britain's decision to join the EEC?
   o Why was scurvy once a common disease among sailors?

2. To consider and analyze available information in order to reach a

   conclusion;

   o After reading the *Forsyte Saga,* what is your impression of the
      author's view of society of his time?
   o Now that your experiments are complete, what is your conclusion
      about the factors affecting the growth of seedlings?

3. To analyze a conclusion, inference or generalization based on evidence;

   o What causes children to disagree with their parents?
   o In what ways have public health measures contributed to a
      worsening of the state of the human population?
   Adapted from Perrott (1982: 44 - 45)

   Analysis questions require critical thinking from pupils. A pupil is
unable to answer an analysis question by repeating information. Analysis
questions require pupils to analyze information in order to identify causes, to
reach a conclusion or to find evidence (ibid., 1982).

Level V: Synthesis (Creating) - (LOTP: 5.0)

   The synthesis question involves students' ability to create a unique,
original product that may be in verbal or written form or may be a physical
object. It requires a combination of ideas to form a new whole. It involves the
production of a unique communication; production of a plan or proposed set of
operations; derivation of a set of abstract relations (Bloom et al.,1956). It
requires the ability to put together parts, or elements to form a whole, a new

pattern or structure not seen before (Tiedt, 1991). In putting parts together to form something new teachers work at the synthesis level. For example, an artist's creative talent is demonstrated by using a synthesis level of thinking (Kissock and Iyortsuun, 1982). Synthesis questions are asked when students are required to form relationships and put things together. These questions help to develop creative abilities of students. Such questions test a thorough understanding of a subject and may require pupils to make predictions, to make original communications or to solve problems. Although application questions also require pupils to solve problems, Perrott (1982) states that synthesis questions differ from these in that synthesis questions do not require answers to problems that have a single correct answer, but instead, allow a variety of correct answers. If teachers want students to construct a connected whole from separate elements through expressing original and creative ideas, they must ask synthesis questions (Morgan and Saxton, 1991). The thinking skills involved may include; originating, integrating, combining, predicting, designing, developing, improving, reflecting, supposing.

Some of the thinking skills may include:

> *originating integrating combining predicting designing*
> *developing improving reflecting supposing*

Some words often associated with synthesis questions include:

> *create plan construct formulate put together design*
> *draw up illustrate tell write suggest*
> (Kissock and Iyortsuun, 1982: 60)

As can be seen from the examples given by Morgan and Saxton (1991), the question is often characterized by such phrases as:

> How could we/you...? How can...? What if...? I wonder how...?
> Do you suppose that...?

Examples of Synthesis questions

- o What do you suppose would happen if we ran out of coal or oil?
- o Under what conditions might countries of the world be likely to unite?

- How would you summarize the effect of the socialist movement in improving the conditions of working people?
- I wonder how he will explain to the farmer how the cow got into the corn?
- I wonder how it is possible to solve the problem of students having to hold a job while they are still in school?

[Examples are adapted from Perrott (1982) and Morgan and Saxton (1991)]

Level VI: Evaluation (Judging) - (LOTP: 6.0)

Evaluation entails the following objectives (Bloom et al., 1956); making value decisions about issues; resolving controversies or differences of opinion; developing opinions, judgments or decisions. These categories are based on the type of criteria used in making the judgement; i.e. First - *Internal* criteria used to judge the logic or consistency of an argument within a presentation; and second - *External* criteria using standards created by the individuals making the judgment or by some other group or agency. Evaluation, therefore, involves the process of making judgments in terms of internal evidence or judgments in terms of external criteria. According to Kissock and Iyortsuun (1982: 66), 'The evaluation level of the taxonomy is concerned with thoughtful and carefully considered judgment'. They further classified evaluation questions into two categories; the first - the lower-level evaluation - is equivalent to recall or knowledge level thinking. This type of question requires a statement of opinion or simple evaluation without any standards for the judgment being given. These questions can typically be answered with a 'yes' or 'no', 'I agree' or 'I disagree', 'I like' or 'I do not like'. For example: 'Was that a good experiment?' 'Did you enjoy the class?' 'Is this book interesting?' 'Did you like the speaker?'. To respond to such questions a student needs only to remember a reaction or feeling they had about something.

Higher-level evaluation questions - the second category are at the highest level of the cognitive taxonomy and will serve as the basis for discussion and application in this study. They ask for logical and rational thinking and result in more legitimate and careful judgments being made (ibid., 1982). Tiedt (1989: 64) refers to it as, 'Judgments made in terms of external or internal evidence, quantitative or qualitative judgments of material or methods using criteria'.

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Perrott (1982: 46) advises teachers to use an evaluation question 'when your purpose is to help pupils choose among alternatives by judging which best fits some stated value. These questions do not have a single correct answer but require the pupil to judge the merit of an idea, a solution to a problem or an aesthetic work. They may also ask the pupil to offer an opinion'.

It can be summed up that evaluation questions are related to judgment, values, and making choices. An evaluation question asks students to organize their thoughts and knowledge to reach a decision or take a position which can be defended. Some of the thinking skills may be involved in evaluation are:

summarizing   judging   defending   assessing   arguing
reasoning   appraising   criticizing   appreciating
selecting   deducing   deciding priorities

Some words often associate with evaluation questions include:

judge   assess   decide   appraise   choose   evaluate   select
do you agree   conclude   opinion   which is better/why   on what basis

An evaluation question is often characterized by such phrases as:

Which is better?   Would you agree that...?   Would it be better if...?
What is your opinion?   Were we(you, they) right to...?

Examples of Evaluation questions:

1. Evaluation questions using *internal* criteria

Internal criteria are concerned with the logic, organization, and consistency within a presentation, statement, or argument. For example, if a student reads a newspaper article on costs of operating schools and the author concludes by saying, 'Students need more discipline'; the student might wonder what the real point of the article was. The author's conclusion is not consistent with the facts that are used, the internal criteria.

Example of evaluation question using *internal* criteria:
   o A social studies class was studying the roles of different members in the family. Six pupils role-played a conversation in a family. When the role play was completed the teacher asks the rest of the class:

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How accurate was the role-play in demonstrating a family conversation?

2. Evaluation questions using *external* criteria

External criteria are standards selected or created by the person making a judgment or by members within an interest area or field of study (Bloom et al., 1956). These criteria are used to judge how well the object being evaluated fits with a class of things. For example, the performance of athletes can be evaluated on criteria that outline the nature of good sportsmanship. An experiment can be judged using criteria that describe a good experiment. In all cases the central criteria that describe good sportsmanship and a good experiment are known and accepted by people in each field of study.

Examples of evaluation questions using *external* criteria:

o Students had studied agricultural development in their area. They were asked the following question in an examination.

Should the use of inorganic fertilizer on our farms be discontinued? Yes or No? Explain your answer by describing the reasons for the judgment you have made.

Other examples of evaluative questions may include:

o Which story most accurately describes life on an English farm?
o Should this statement be defended or rejected? For what reason?
o Which topic shall we select for study next? How would you justify this choice?
o Do you consider that a factory which pollutes a river should be closed, even if this will result in unemployment?

Note: In the assessment of the *Evaluation* Questions, the LOTPs of RCQs, regardless of their criteria (either *internal* or *external*) are considered as one level (i.e. 6.0).

Level VII: Affective - (LOTP: 7.0)

The affective domain is concerned with emotions, interests, feelings, beliefs, values, and appreciations (Krathwohl et al., 1964). Questions in this domain require pupils to express their feelings about things that affect them and to describe how their beliefs affect their actions. The affective domain is closely related to the cognitive domain and vice versa. It is arguably difficult to

distinguish affective questions from cognitive questions in practice because many affective questions have a cognitive aspect. This operational difficulty of using the two taxonomies reinforces the notion of amalgamating items in which has been done in the Cogaff taxonomy. But they are conceptually distinct (Kissock and Iyortsuun, 1982). Krathwohl et al., (1964) have categorized the affective domain into five levels. These are: Receiving, Responding, Valuing, Organizing a value set, and Characterizing by value complex.

Level I: *Receiving*

In Krathwohl et al., (1964), this level is concerned with helping pupils become conscious of the presence of certain objects, people, events, or ideas. Instructional activities or questions at this level are designed to introduce pupils to new objects and ideas and have them show their awareness and willingness to receive or attend to them. This level is fundamental for it is not possible to value something without being aware of its existence.

The receiving level is divided into three categories: **Awareness,** the lowest level exhibit the situation where the learner is simply aware that something exists. He/she has not sought anything out of it as yet. **Willingness,** the next level, indicates that the learner is willing to pay some attention to the stimuli shown. The highest level of this category is **Controlled or Selected Attention,** whereby, the individual is sensitive to the new idea and begins to show interest and to apply the idea introduced (Kissock and Iyortsuun, 1982).

Sample questions of the *receiving* category

   o How do you feel about visiting places away from your home?
   o Should people be afraid to visit places away from their homes?

Key Words normally associated with *receiving* category

   listen aware sensitive attend attentive observe describe identify receptive conscious cognizant
                              Adapted from Kissock and Iyortsuun (1982)

Level II: *Responding*

Teachers generally try to capture their students' interests in the lessons presented. When this is possible, the students are acting at the *responding* level (Krathwohl et al., 1964). At this stage the students are not only aware of an idea

but are beginning to respond to the idea presented. Responding to stimuli takes many different forms. There are three categories within the responding level of the affective domain: These are; *Complying with a stimulus or Acquiescence in responding, Initiating action, and Showing an emotional response of pleasure or enjoyment from reacting to a stimulus* (Ibid., 1964). **Acquiescence in responding,** the lowest level, is characterized by doing something even though the reason for responding is not fully understood - such as obeying a rule or law without understanding the reason for it. At the next level, **willingness to respond,** the individual reacts in a manner beyond merely complying with a stimulus. The individual actively looks for information and opportunities to learn about or become involved with it. For example a student may look for reasons behind ideas, work for the benefit of a group he/she belongs to, read, attend lectures or conduct experiments without being directed to do these things. At the third, or **satisfaction in response level,** he/she gains the positive emotions such as pleasure, joy, and excitement result from participating in an activity or learning about an idea.

Key Words associated with *responding* category

> *participate volunteer enjoy seek act comply conform read select respond react learn*

Examples of *responding* questions

- o Do you try to make friends with people from other ethnic groups
- o Have you ever tried to learn a language other than your own?
- o Are you comfortable in the presence of people who are not of your own village or town?
- o Do you like to cooperate with people of other ethnic groups on projects that are good for the society?
- o If you lost to another student in an election competition would you complain to the adults in charge.

Level III: *Valuing*

Questions at the valuing level seek to determine if the student believes in or is committed to the idea which has been presented. At this level an individual defends something when it is being challenged by others, says and shows through actions that the idea is believed in, and actively works to maintain,

support, and promote the idea (Kissock and Iyortsuun, 1982). To have students value what they are already interested in is not an easy thing for a teacher to do. This is why this level is considered more difficult to achieve through instruction than the previous two levels (ibid.,1982). There are many things a teacher values and expects students to value as well. A few examples include: choosing a profession, believing in one form of government over others, choosing the right partner in life, and possibly looking to past ways of living and believing they offer more to people than current lifestyles appear to do.

Key Words associated with the *valuing* category

> *value believe accept depend on use worth appreciate*
> *commitment important adopt embrace treasure*
> Kissock and Iyortsuun, 1982

Examples of *Valuing* Questions

- o Why should all citizens respect the cultures of different ethnic groups in the country?
- o Would it be fair to other ethnic groups in the government authorized that only languages of certain groups be broadcast on the radio? Why?

Level IV: *Organizing a Value Set*

This level is demonstrated when an individual tries to resolve conflicts between values. These conflicts arise when new values are accepted or new situations are encountered and a decision has to be made between competing beliefs (Kissock and Iyortsuun, 1982). Questions at this level encourage pupils to compare values and form a system or set of values. This process is most clearly observed when a person is faced with a value dilemma and must choose between two competing values to guide his/her actions.

Sample Questions of *Organizing a Value Set*

- o Is it all right to take a bribe?
- o Should we encourage a person to vote for our candidate?
- o Should a person use his position to get a job for a friend?

The class might then be led through a discussion of the advantages and disadvantages of each position on such operations and consider the effect of their decisions on national development if they were allowed to prevail. After

the effects have been identified pupils can then be asked to suggest or propose actions which might improve the situation. By making choices between conflicting value positions students are working at the 'organizing a value set' level of the affective domain.

Level V: *Characterizing by Value*

Krathwohl et al., (1964) suggest that 'characterising by value' or value complex represents the most advanced step in internalising values. At this stage the individual may no longer consciously realise that he/she is participating in, or practising, a particular value. The value has become part of a lifestyle, and it is difficult to imagine the person not practising the value. An example would be a person who has so eliminated ethnic bias from thoughts and actions that he/she does not discriminate between people on the basis of their ethnic background. Citizens who are wholly committed to national unity might exemplify this level. Questions at this level test the pupils' codes of behaviour or life values which they have developed.

Key Words associated with the *characterising by value* category

> *show   live by   demonstrate   maintain   lifestyle   act   display practise   use   predictable   constant*

Sample Questions of *Characterising by Value*

- ○ What should we do in order to unite the different ethnic groups in this country?
- ○ How could we improve the living standard of this country?
- ○ What all leaders must do in order to achieve a long lasting peace in both countries?

Note: In the assessment of the *Affective* Questions, the LOTPs of RCQs regardless of the five levels and sub-categories are considered as one level (i.e. 7.0).

Further reasons why the affective domain is placed last in the Cogaff taxonomy

The fact that *evaluation* placed last in the cognitive domain, is not necessarily last in thinking or problem solving. Bloom et al. (1956) suggest that the *evaluation* may lead to the *affective* domain, which is one reason why is

placed last in the higher-order category of the Cogaff taxonomy. Other reasons for placing the *affective* domain last in the taxonomy may include;

i.) **Feelings** and **attitudes** (affective aspects) are elements of emotional climates often come into play once a cognitive assessment (involving *analysis, synthesis,* or *evaluative*) is engaged. For e.g. a student might only be able to express his/her **feelings** and/or **attitudes** over an issue once he/she has made a cognitive assessment of the issue (Edwards and Mercer, 1987). However, sometimes the reverse process happens.

ii.) Effective teaching includes recognizing that all students bring their feelings, as well as their minds and bodies, into the classroom. Understanding how to engage and capitalize on this 'internal state' of needs, preferences, anxieties, curiosity and excitement will be the dynamic which transforms the classroom into a place where learning is recognized by the students as something to be valued for itself rather than as a means to someone else's evaluation (Morgan and Saxton, 1991).

iii.) Barrett's (1972) taxonomy of *cognitive and affective dimensions* categorized comprehension skills into five major levels: *Literal comprehension (1.0), Reorganization (2.0), Inferential Comprehension (3.0), Evaluation (4.0) and Appreciation (affective) (5.0).* The tasks in each category have been structured from easy to difficult. Barrett, according to Clymer (1968), utilized the work of Bloom, Sanders, and Guszak in designing the taxonomy, and explicitly categorized the affective domain (which he refers to as appreciation) as the last category in his taxonomy. This further supports placing the affective domain as the last category (7.0) in the Cogaff taxonomy.

4.2 Construction and Analysis of RCQs/RCTs according to different domains of thought processes Using the Cogaff Taxonomy

Some of the RCQs constructed by the subjects during the pretest and posttest are hereby reproduced to show how they are designed and assessed according to different levels of thought processes (LOTPs) of the Cogaff taxonomy. Two RC texts written by John Seely (1982) namely, *An Escape* and

The Titanic were used by the subjects to design some relevant RCQs. The LOTPs of the RCQs constructed by the subjects were then assessed by using the Cogaff taxonomy and were recorded in the taxonomy columns (TAX) as shown in the table below. The numbers in the taxonomy columns denote the levels of thought processes (LOTPs) of the RCQs where: 1 = Knowledge or Recall or Literal; 2 = Comprehension; 3 = Application; 4 = Analysis; 5 = Synthesis; 6 = Evaluation; and 7 = Affective.

The Text: *The Titanic* by John Seely (1982)

Please read the following text. Based on the text, please do the following:

1. Construct AT LEAST five (5) relevant comprehension questions. An attempt to design more than five is appreciated.

2. Design AT LEAST three (3) reading comprehension tasks/activities.

It was April 9th 1912. A crowd of people stood on the dockside at Southampton. They were watching the splendid new liner. *Titanic,* steaming out of port. It was its maiden voyage. Suddenly a woman in the crowd pushed forward.

'That ship will sink!' She shouted. Her friends tried to calm her down. The *Titanic* was unsinkable, they said. It was built to the very latest design. Nothing could go wrong. But the woman would not be reassured.

'No!' she cried. 'They will all be drowned.' Five days later she was proved right. The *Titanic* hit an iceberg and sank. about 1500 people were killed.

This is an example of precognition, knowing what is going to happen in the future. Precognition is one form of extrasensory perception. Extrasensory perception, or ESP, is the ability to know things without the use of your five senses.

There are other forms of ESP. Some people have the ability to know what you are thinking, without being told. We call this telepathy. Others can 'see' things that are actually hidden from them. They may know what is in the darkened room, or be aware of things that are out of sight. This gift is known as clairvoyance. Perhaps the most exciting form of ESP is called psychokinesis. It is the ability to change or move objects just by thought. You may have seen or read about people who can, for example, bend spoons simply by the power of thought. That is psychokinesis.

Some of the things said about ESP may seem fantastic. Scientists in America and Russia, however, take ESP very seriously. They believe that it may be useful in any future war between their countries. They are studying it very carefully.

Seely, J. *Oxford Secondary English* (1982). OUP

Possible questions that can be constructed using the Cogaff Taxonomy

1. Knowledge/Literal - Where did the *Titanic* sail from its first voyage?

2. Comprehension:
    Translation   - What is the meaning of the word `precognition'
                   as described in the text?
    Interpretation - How is claivoyance different from psychokinesis?

3. Application   - How best could you use ESP for the good of your
                     own country?

4. Analysis   - Why did no one believe the woman when she said
                     `That ship will sink'?

5. Synthesis   - If you could have ESP, which one would you choose
                     and why?

6. Evaluation   - Is the evidence given in the text adequate for an
                     investigation to take place?

7. Affective   - Do you believe in ESP? Express your feeling about the
                     Titanic tragedy.

Possible reading comprehension tasks/activities that can be designed on the *Titanic* using the cognitive taxonomy.

Activity one - Knowledge or Literal (1.0[*])

Instruction: Fill in the appropriate boxes with suitable information obtained
            from the text.

	The *Titanic* left Southhampton
The number of people killed	
Precognition is	
	Scientists take ESP seriously
	Ability to know what you are thinking without being told
Different types of ESP	

Activity two - Translation (Comprehension) (2.0)

Instruction: State the meaning of the following words and phrases
according to the context as described in the text.

Activity three - Interpretation (Comprehension) (2.0)

Word/Phrases	Meaning
splendid	
unsinkable	
fantastic	
steaming out of port	
the power of thought	

Instruction: Using the information given in the text, state the different types
of ESP and explain how one differs from another in terms of
definitions and functions.

ESP	Definition	Function

Activity four - Application (3.0)

Instruction: Give an example of a situation of how each type of ESP
can function.

ESP	Situation
Precognition	
Telepathy	
Clairvoyanc	
Psychokinesis	

Activity five - Analysis (4.0)

What do you think would have happened if the woman raised the
alarm about the tragedy one or two days prior to the maiden
voyage?

....

....

....

....

Activity six - Synthesis (5.0)

Instruction: As someone gifted with ESP (precognition), prior to the incident, draw up a plan to save the *Titanic*

....
....
....
....

Activity seven - Evaluation (6.0)

Instruction: a. Outline how this tragedy could have been avoided.

b. Working as an insurance agent, how would you work out your assessment of financial compensation to the families of the victims?

Activity eight - Affective (7.0)

Instruction: As a close relative of one of the victims of the Titanic mishap, describe your feelings about the tragedy and how would you console yourself and the families of the other victims

....
....
....
....
....

4.3 Assessment Procedure of RCQs and RCTs using the Cogaff taxonomy

The assessment procedure adopted in categorizing the RCQs and RCTs in both the pretests and posttests are carried out as follows;

1. A reading comprehension question or task is first categorized as to whether it belongs to the lower-order (literal) or higher-order (inference) types depending on whether the answer it seeks or the activity it promotes is textually based (suggesting *literal*) or one that goes beyond the textual context (suggesting *inference*).

2. If it belongs to the former, it is then categorized as to whether it is placed either in the *knowledge* or *comprehension* types (refer to table 5.1.5a for further details on the levels). Such question or task is then categorized as 1.0 in the assessment.

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3. If it belongs to the latter, then it is categorized according to any level of the higher-order (inference) types; i.e. either **application** (then categorized as **3.0**), **analysis** (**4.0**), **synthesis** (**5.0**), **evaluative** (**6.0**), or **affective** as **7.0**. (Table 4.3 shows how the RCQs and RCTs are assessed using the Cogaff taxonomy).

Table 4.3 Construction of RCQs and RCTs according to the different Levels of Thought Processes of the Cogaff Taxonomy

NOS.	QUESTIONS	TAX	TASKS	TAX
1	Who got the baby in the end? (FP)	2	Complete the passage with one word from the table and a suitable preposition. Each word can be used at least once.	1
2	Who was the real mother? (FP)	1	Rearrange the following sentences in the order that you think right.	1
3	Who was the right mother? why? (IP)	4,5	Say the following statements are true or false. Correct the false statements.	1
4	"Justice is the upholding of what is right." Do you agree with the judge's decision? Give a reason for your answer.	4,5,6	We only know if we are just and without prejudice when we are put to the test. Work in groups of four. Study the notes below. Choose one set of notes and complete the story.	3
5	What kind of person was the wife? Did you like her? Give your reasons.	6,7	Use the information in the story to complete the sentences.	2
6	Why did the husband deny that he had told his wife about the unicorn? (IP)	4	Find out words in the passage with the following meanings:	1
7	What is the moral of the story? (IP)	4,5,7	Work in groups. The text contains clues about personal feelings. Explain what the following characters felt and why. 1 Jem - when the verdict was read (IP) 2 Aunt Alexandra - when she heard the news about Tom's death. (IP)	 4 4
8	In literature, poetic justice means the rewarding of good and the punishment of evil. In this story, do you think there was poetic justice in the end. Explain.	6	Work in groups. Read the last paragraph carefully. Discuss what kind of person would make such a statement.(IP) Complete the list below to show the special qualities such a person would possess. (IP)	 4 4
9	This story is recounted through the eyes of a little girl called Scout. It deals with the prejudice of white people against blacks. Why do you think the author chose a child to be the narrator of the story?	4,5	Work in groups. Look at the list below. Choose as many items as you need and write out a short play. You may introduce an item that is not in the list.	3
10	Do you agree with the fly's argument to justify its existence?	4,5,6	Work in a group. Discuss what you would do in these situations. 1 You are an only child. Your parents are	

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			aged and cannot live by themselves. You are living on your own and are quite well off.	4
				4
11	Have you ever considered a fly from this angle before? Give reasons for your answer.	4,5,6	2 You see a child shoplifting while shopping in a department store. You know he will get into serious trouble if he is caught. You also realize it is likely that he will be caught as a sales assistant is watching him closely.	4,
				5
			Work in pairs. Write down two of your greatest successes and two of your greatest failures. Explain why they stand out in your mind.	3
				4
				5

4.4 Conclusion

Based on a review of relevant literature and the insights gathered from the results of the experiments carried out in this study in the manner of how the Cogaff (Cognitive-affective) taxonomy was utilized in the construction of RCQs and RCTs (see Chapters 5, 7 and 8), it can be concluded that the Cogaff taxonomy has a high degree of flexibility as far as its usefulness in constructing various levels of questions is concerned. It also gives a teacher an advantage of having a wide range of choices in making instructional decisions (i.e. teaching tasks and activities) related to objectives associated with each level of the taxonomy as gathered from Kissock and Iyortsuun (1982).

The taxonomies of educational objectives (cognitive and affective) originating from the works of Bloom et al. (1956) and Krathwohl et al. (1964) have led to many applications and adaptations (e.g. TPQI (1968), FTCB° (1968), Kissock and Iyortsuun (1982), the Barrett taxonomy (1972)). The present study, a more recent adaptation and application of the cognitive-affective taxonomy in question and task design applies this taxonomy to teacher development by investigating possible changes in teachers' design of questions and tasks after they have engaged in a workshop introducing the taxonomy. The next chapter reports a pilot study using the taxonomy in this way.

° TPQI taxonomy (Teacher-Pupil Question Inventory, 1968)
  FTCB taxonomy (Florida Taxonomy of Cognitive Behaviour, 1968)

CHAPTER FIVE
RESEARCH FINDINGS: PILOT STUDY

5.0 Introduction

This section presents a report of the pilot study of this research, which was carried out at two universities of Manchester and Birmingham in England. The chapter discusses the major themes and important variables that relate directly or indirectly to Reading Comprehension (RC) questions and tasks, the focal point of the study. The pilot study tests the methodology and paves the way for a better understanding and handling of the main research.

The workshops included activities in which teachers produced RC questions and tasks in response to particular texts. They were conducted with the following purposes in mind:

1. to find out the types and levels of RC *questions* produced by Malaysian English teachers;

2. to find out the types and levels of RC *tasks* formulated by Malaysian teachers;

3. to examine if there is any significant correlation between RC questions and tasks;

4. to establish the idea of applying the knowledge of the Cognitive/affective taxonomy in designing RC questions which would form the basis of constructing further RC tasks for Reading Comprehension instruction.

The subjects worked in pairs or groups of three to design reading comprehension questions and tasks. Working in this way facilitated and encouraged discussion and sharing of ideas and experiences. Each subject, identified by a number, nevertheless worked individually while responding to questionnaires. The latter were used in an effort to elicit the following information:

1. background information of the subjects;

2. their teaching experiences ;

3. subjects' perceived knowledge (specific and related) regarding how to deal with RC questions and tasks;

4. subjects' awareness of underlying principles and guidelines (if any) normally used in designing RC questions and tasks;

5. subjects' suggestions and ideas for further improvement of the study.

The main purposes of the questionnaire were to examine any correlation between independent variables (namely, teaching experiences and students' perceived knowledge (specific and related) of reading comprehension activities) with the dependent variables of RC questions and tasks. It is hoped that the questionnaire would serve to demonstrate a certain degree of perceived relationship between questions and tasks.

5.1 Subjects

Forty undergraduate Malaysian in-service teachers, who were undergoing a three-year programme in BA in ELT (English Language Teaching) and B. Ed in TESOL (Teaching of English to Speakers of Other Languages) in the Universities of Birmingham and Manchester, respectively, willingly participated in the workshops which were scheduled for three hours each. These participants were in their final year and would complete their studies by the end of 1995. The selection of subjects for Workshop 1 (University of Manchester) and Workshop 2 (University of Birmingham) was essentially based on the fact that the students from the two universities apparently fell within a very similar specialisation, entry qualifications and teaching experiences as the B.Ed (TESL) students of 'Universiti Putra Malaysia' (UPM) where the subjects of the main fieldwork were enrolled.

The subjects had had their initial training in various teachers' colleges in Malaysia and had taught English as a subject in primary and secondary schools all over the country for at least five years before they were eligible to further their studies at Bachelor degree level having obtained the necessary preliminary

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qualifications such as a Diploma in ESL, TESL or TOEFL from local or foreign universities. Thirty-six of them (90.0%) had teaching experience as English teachers of ten years or more, while only four of them (10.0%) had taught English in schools for a period of five to nine years. This substantial experience ranging from five to ten years or more, adequately qualified them as feasible respondents for **questions and tasks** in Reading Comprehension instructions.

5.2 Methodology

The workshops were conducted in three phases viz.: **pre-intervention; intervention** and **post-intervention.** The input shifted from the subjects to researcher and back to subjects respectively. In the **pre-intervention phase**, the subjects were required to construct a number of RC questions and RC tasks based on a RC text. This phase was designed to establish a baseline of how the teachers would 'normally' construct RC tasks, i.e. without any special consideration or in-service input. This phase was followed by their responding to questionnaires. The **intervention phase** called for the 'treatment on the plot' (Ferguson & Takane,1989) by the researcher. The treatment took the form of an in-service workshop which emphasised the application of the Cognitive/affective (Cogaff) Taxonomy in RC question designing and task formation. This phase was designed to raise participants' awareness of the possible variety and range of RC questions and tasks so that they would be in a position to improve their skills in RC task design and, perhaps, broaden the range. The **post-intervention phase** emphasised whether the 'treatment carried out on the plot has produced the expected yield' (Ferguson & Takane, ibid.). At this stage, the method in Phase 1 was repeated on a different RC text (text 2). Participants then responded to the same questionnaire for the second time. This third phase was designed to give the subjects an opportunity to apply their awareness from phase 2. It also enabled the researcher to ascertain any developments from phase 1.

The methodology adopted in carrying out the workshop is outlined as follows:

Figure 5.2: The Methodology of the Pilot and Field Studies

	I	II	III
Phase 1 **PRE-** **INTERVENTION** (Subjects)	Reading text 1	Design RC tasks/ activities	Respond to Questionnaire

	I	II	III
Phase 2 **INTERVENTION** (Researcher)	Rationale and review of literature - Previous studies - Contemporary studies	Theoretical framework - Different taxonomies - Cognitive/ affective taxonomy/Comp. processes (CP)	-RC question designing using Cognitive/affective taxonomy and learning strategies - Developing RC tasks using 'Cogaff' taxonomy/CP

	I	II	III
Phase 3 **POST -** **INTERVENTION** (Subjects)	Reading text 2	Designing RC - questions - tasks according to 'Cogaff' taxonomy/CP	Question/answer session

Figure 5.2 Methodology of the Pilot/Field Studies

Figure 5.3: The Compatibility between the Cogaff Taxonomy and the Comprehension processes

Cogaff Taxonomy (CT)	Comprehension Processes (CP)

1.0 Knowledge/Literal
2.0 Comprehension
    2.1 *Interpretation*
    2.2 *Translation*
3.0 Application
4.0 Analysis
5.0 Synthesis
6.0 Evaluation
7.0 Affective
	1.0 Microprocesses
	2.0 Integrative processes
	3.0 Macroprocesses
	4.0 Metacognitive processes
	5.0 Elaborative processes
	    5.1 Making predictions
	    5.2 Prior knowledge
	    5.3 Semantic mapping
	    5.4 Higher Level Thought Processes (HLTP)
	    5.5 HLTP - Application
	    5.6 HLTP - Analysis
	    5.7 HLTP - Synthesis
	    6.0 HLTP - Evaluative
	    7.0 Affective

Note: The details on each level of the Cogaff Taxonomy are discussed in Chapter Four and details of the Comprehension Processes are provided in Appendix 5.5.2

5.3 Criterion of questions and tasks

1. The levels of RC questions (RCQs) and tasks (RCTs) involving all phases of this study (both pilot and field studies) were assessed using the Cognitive/affective (Cogaff) taxonomy (see Chapter 4). As the Cogaff taxonomy was used in assessing the questions, The CP taxonomy was utilised to assess the types and levels of RC tasks instead. The Comprehension Processes (CP) introduced by Irwin (1991) is used in assessing the RCTs in the pilot study because this second taxonomy, by virtue of its characteristics and criteria of categorisation of tasks, is very much in line with Bloom's taxonomy. Like Bloom's taxonomy, the CP categorises tasks into two major categories, non-inferential and inferential (see figure 5.3). Using the CP is deemed necessary for RC tasks are more diversified in nature and types than RC questions. As the Cogaff taxonomy categorises the questions, the CP proposed by Irwin (1991) is deemed sufficient to handle the assessment of the RC tasks. It is compatible with the RC taxonomy in terms of level of thought processes as required in the assessment of each task or question. Each is complementary of the other, in terms of roles and functions (see figure 5.3). The use of the CP in assessing the RCTs is only engaged in the pilot study in order to solicit other alternative measures and criteria in assessing the tasks. The Cogaff taxonomy was used in the assessment of tasks in the main field work instead. The CP is not utilised in the assessment of RCTs during the main field study due to the following reasons:

i. The levels of thought processes (LOTPs) of the CP (see figure 5.3) are assigned by the present author to accommodate the assessment processes of the RCTs. They do not represent the exact categorizations of different categories of comprehension processes which appear in the original source. The level of each category was assigned by the present author based on assumptions gathered from the definition of each category given

by Irwin (1991). The reason for adaptation is that the original CP as given in Appendix 5.5.2 seems a little confusing to use, as far as the present study is concerned. It is rather difficult to categorise the various categories and sub-categories of the CP in terms of *literal* and *inferential* levels of thought processes. The CP, as it appears in Appendix 5.5.2 may illustrate this point.

ii. The Comprehension Processes, despite the wider categorisation of RCTs in terms of thought processes, are much more complex to apply in the assessment of the RCTs.

iii. It was discovered, as far as this study is concerned, that the Cogaff taxonomy (adapted from Bloom and Krathwohl) is much more practical and easier to apply in the design and categorisation of RCQs and RCTs.

Based on the above, it was decided that it is easier and more appropriate to use the Cogaff taxonomy as far as this study is concerned, in the design and assessment of RCQs and RCTs during the field study.

2. The assessment of each question and task was carried out by two other raters, apart from the researcher himself. Raters met on a number of occasions in accomplishing the task. Inter-rater reliability is not discussed, for the rating of each question and task is done on a consensus basis shared by all the raters, i.e. final unanimous agreement was reached through discussion.

3. It was decided by the raters that when more than one taxonomic or comprehension level was involved in one particular question or task, the highest level would be taken for the final consideration. This is to avoid inadmissible existence of the highest category within a particular range of levels if it is taken based on the average counts. This procedure is also based on the fundamental recognition of the value of the higher levels and therefore gives credit, so to speak, where these occur. An alternative procedure would have been to accept two or more levels for a question or task, in such cases. This is realistic since questions and tasks

often <u>do</u> involve several levels, however this multiple levels approach greatly complicates the decision making for raters. In the present research, it is enough to focus on the **highest** level involved in each question and tasks, rather than the **total** number or **spread** of levels for each task.

4. It is not the prime purpose to fragment each question or task according to its actual level of precise thought processes, though an attempt is made to do so as closely as possible throughout the stages involved in the categorisation of each question and task. The main idea is to establish whether each question or task belongs to the **literal** or **inferential** category. This task is adequately handled by the **Cogaff Taxonomy** which ranks questions as '**literal**' (in the *literal* and *comprehension* types) and '**inferential**' (in the *application, analysis, synthesis, evaluation* and *affective* types). The '**literal**' tasks categorised by CP comprised the types under *microselectives, integrative, macroprocesses* and *metacognitive* processes while the '**inferential**' will include *making predictions, prior knowledge elaboration, affective responses* and *higher level thinking processes* and their sub-categories.

5.4 Results of Formulation of RC Questions and Tasks

The following tables represent the results of the two workshops on RC question and task design at the universities of Birmingham and Manchester. The subjects worked in groups of two or three while handling the tasks. The tables also demonstrate how each RCQ was categorised according to its level of thought process using the Cogaff taxonomy. The level of thought process for each RCQ is identified in the 'taxonomy column' by a number: 1 = *literal*, 2 = *comprehension*, 3 = *application*, 4 = *analysis*, 5 = *synthesis*, 6 = *evaluative*, and 7 = *affective*. A detailed explanation for each level of comprehension or thought process is provided in Chapter 4.

Table 5.4 (i) presents the RC questions designed during the pre and post tests using the texts, *An Escape* and *The Titanic* respectively, at the university of Birmingham. The numbers in the 'tax' column denote the taxonomy level of each question.

Table 5.4(i) gives the summary of levels of questions designed during the pre and post stages at the University of Birmingham. Table 5.4(ii) provides the analysis of levels of RCQs based on 5.4(i).

Table 5.4(iii) presents the RC questions designed by the subjects during the pre and post-test stages carried out at the university of Manchester, using *The Titanic* and *An Escape* respectively. Table 5.4(iv) provides the analysis of levels of RCQs based on 5.4(iii).

It is important to note that there was a reversal manipulation of texts used during the pre and post tests carried out at the two universities. The text, *An Escape*, used at the pre-test stage at the university Birmingham, was used as post-test material at the University of Manchester, while *The Titanic*, used as pre-test material at the University of Manchester, was used for the post-test at the University of Birmingham. The reversal manipulation of texts is shown in figure 5.4a.

	BIRMINGHAM	MANCHESTER
Pretest	*'An Escape'*	*'The Titanic'*
Posttest	*'The Titanic'*	*'An Escape'*

Figure 5.4a: The reversal manipulation of texts in the pilot study

The manipulation of texts during the pre and post tests in the two universities is carried out for the following reasons:

1. To nullify the fact that certain texts are likely to produce only certain types/levels of questions.

2. To establish the fact that different types/levels of questions/tasks can be generated regardless of text types. Ideally, perhaps a wider range of text types would have been used but this idea was discarded because using more texts would have meant either extending the time given for the workshop (which was not

feasible) or reducing the number of subjects who worked with any particular text (which would have in effect reduced this number beyond an affordable limit since access to subjects was already restricted).

3. If 1 and 2 above are accepted, then any RC text may be considered valid to be used for the purpose of question and task designing.

Tables 5.5(i), (ii), (iii) and (iv) are the reproductions of the summary and analysis of results on pre-post tests using different texts (i.e. by text); and pre and post tests using similar texts carried out at the two universities (i.e. by university).

Table 5.4(i) Results of Question designing (University of Birmingham)

Pre- vs. Post-test - Intra-subjects using different texts

	PRE-INTERVENTION			POST INTERVENTION	
	QUESTIONS (PRE)			**QUESTIONS (POST)**	
GR.	Text: *An Escape* by John Seely (1982) Subjects: 21 Malaysian in-service teachers Venue: School of Education, University of Birmingham	**TAX**		Text: The *Titanic* by John Seely (1982) Subjects:20 Malaysian in-service teachers Venue: School of Education, University of Birmingham	**TAX**
1	1. Describe the way the escapees reached Paris? 2. Who helped them to escape?	2		1. Would you like to experience such a situation? Why?	7
	3. What finally happened to Dupuis?	1		2. If you were one of the passengers of the Titanic, would you believe the woman? why?	7
	4. How did the escapees show their gratefulness to those who saved them?	2		3. Would you react like the women if you can predict the outcome?	7
	5. Who would join the RAF Escaper's Society?	2		4. If you are given a choice, which form of ESP would you prefer to have? Justify your choice?	6
				5. Do you consider it to be an advantage or disadvantage to have the abilities of ESP? (*take the average of 4 and 5)*	5
2	1. Why did Bill and his friends had to travel at night?	1		1. Despite its latest design, why do you think the 'Titanic' hit the iceberg?	7
	2. How long were they in Soissons?	2		2. What do you think of the outcome of war if the Russian and the American scientists are successful in their ESP experiments?	7
	3. Where would the French Resistance take the RAF men to escape the Germans?	1			
	4. What is the aim of the RAF Escapers' Society?	1		3. If you were the 'woman' what would you do to avoid the disaster?	7
	5. What happened to Maurice when the Germans raided his house?	1		4. Why do you think the 'Titanic' sink?	7
				5. If you were the 'women' how are you going to convince the public about the disaster that you envisioned?	7
3	1. When did the incident take place?	1		1. In your opinion, should the 'women's' prediction be taken seriously?	7
	2. What would happen to the Dupuis if the airmen were found in their house?	1		2. If you had the power of ESP, how would you use it to help others?	7
	3. Who were the RAF men?	1		3. How best could you use ESP for the good of your studies?	3
	4. How did the French Resistance movement help the airmen to escape?	2		4. Why did no one believe the woman when she said the ship is going to sink?	4
	5. When did they reach Spain?	1		5. Which of the power of the ESP would you like to have, if you could? Why?	5

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4	1. Who was Bill Alliston? 2. What happened to Bill when his plane was shot down? 3. Why do they have to hide during the day? 4. Why did the Germans raid Dupuis' house? 5. What is the function of the RAF Escapers' Society?	1 1 2 2 2	1. If you were at the dockside, how would you react to the woman's prediction? 2. As a passenger, would you have sailed in the 'Titanic' after hearing the woman's predictions? Give reasons for your answer? 3. Imagine you were a 'clairvoyance', would you consider it as a gift or as a curse? 4. How would ESP be useful in wars between countries? 5. What would happen to the telecommunication services if everyone developed telephatic power? 6. What would you do to save yourself if you were on board of a ship that is about to sink?	6 7 4 5 5 7
5	1. How do you think Bill injure his leg? 2. Who were the parties involved in the Second World War? 3. Why didn't Maurice tell the Germans about the RAF men? 4. How did Bill show his gratitude to Maurice? 5. What do you think 'his silence cost him his life' mean?	2 2 4 2 2	1. How do you think the woman was able to foresee the 'Titanic' tragedy? 2. What did her 'friends' who tried to calm her down feel for her? 3. Would you believe that predicting 'what's going to happen in future' is possible? 4. What could she have done to prevent the tragedy? 5. Why are 'some of the things said about ESP' fantastic?	2 4 7 6 4
6	1. How many men were in the plane when it was shot down? 2. Who nursed Bill back to life? 3. Why did Bill Alliston set up the RAF Escapers' Society? 4. What is the meaning of the phrase 'tip them off'? 5. How did Bill show his gratitude to the Dupuis'	1 1 2 2 2	1. What would be your immediate reaction if you were among the crowd having heard the 'woman's' shouting? 2. Describe briefly your personal view of ESP? 3. How can ESP be used in future warfare? 4. How would you make use of the power of ESP if you possessed it? 5. The word 'see' is used differently in the context. List other meanings of 'see'	7 7 5 5 2
7	1. What happened to Bill when his plane was shot down? 2. Why they need a lot of rest? 3. What does the word 'nurse' mean in line 11? 4. How did the Dupuis' help the airmen? 5. What is the function of the RAF Escapers' Society?	1 4 2 2 2	1. When was the 'Titanic' launched? 2. If you were in the 'Titanic' how would you have saved the passengers from drowning? 3. If you were the 'woman's' friend would you have believed her? Give your reasons? 4. If you had an ESP, how would you help countries that are at war? 5. How would you feel if you had an ESP?	1 5 6 5 7

ANALYSIS OF LEVELS OF QUESTIONS
University of Birmingham

TAX	PRE-TEST An Escape	SUM	%	POST-TEST Titanic	SUM	%
1	LITERAL	14	40.0	LITERAL	1	2.9
2	COMPREHENSION	19	54.3	COMPREHENSION	1	2.9
3	APPLICATION	-	-	APPLICATION	1	2.9
4	ANALYSIS	2	5.7	ANALYSIS	4	11.4
5	SYNTHESIS	-	-	SYNTHESIS	8	22.8
6	EVALUATION	-	-	EVALUATION	4	11.4
7	AFFECTIVE	-	-	AFFECTIVE	16	45.7
	TOTAL	35	100	TOTAL	35	100

Table 5.4(ii) Analysis of Levels of Questions at Birmingham

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Table 5.4(iii) Results of Question designing (University of Manchester)
Pre- vs. Post-test - Intra-subjects using different texts

	QUESTIONS (PRE)	TAX	QUESTIONS (POST)	TAX
GR	Text: The *Titanic* by John Seely (1982) Subjects: 21 Malaysian in-service teachers Venue: School of Education, University of Manchester	**TAX**	Text: *An Escape* by John Seely (1982) Subjects:21 Malaysian in-service teachers Venue: School of Education, University of Manchester	**TAX**
1	1. How many voyages has the *Titanic* made before it sank? 2. How did she know that the ship is going to sink? 3. How did her prediction come true? 4. What are the different forms of ESP mentioned? 5. What is 'clairvoyance'?	2 2 2 1 2	1. Who were the British Alliance in the Second World War? 2. How did Bill and his friends manage to escape? 3. Who made up the RAF Escapers' Society? 4. If you were one of the Escapees and you met the Germans, what would have come to your mind, describe your feelings? 5. What would have happened if Bills and his friends did not meet the Dupuis'	2 4 2 7 5
2	1. Why was there a crowd at Southampton? 2. How did the *Titanic* sink? 3. Name the types of ESP? 4. Why was the psychokinesis considered the most exciting form of ESP? 5. Why are some scientists seriously studying ESP?	1 1 1 2 2	1. Name the family that helped the airmen? 2. Do you think Maurice would have lived had he told the truth? Why? 3. In your opinion who betrayed the Dupuis'? 4. What would you have done when the Germans found you out? (Imagine you were Dupuis') 5. Do you think financial help alone was enough to repay the effort of the people who risked their lives to help the escapees?	1 6 7 5 7
3	1. Why did the woman in the crowd push forward? 2. What are the forms of ESP? 3. How did the *Titanic* sink? 4. What is clairvoyance? 5. Why are the scientists interested in ESP?	2 1 1 2 2	1. What do you understand by the phrase 'parachuted to safety'? 2. What nationality do you think gave the Germans the tips? 3. Why were the Dupuis willing to look after the airmen? 4. In your opinion was the Dupuis sacrifice worthwhile? 5. If you were the Dupuis, what would you have done and why?	2 4 4 6 7
4	1. How did the 'woman' know that the *Titanic* would sink? 2. What was the name of the ship? 3. How many people were drowned? 4. How did the *Titanic* sink? 5. What is 'clairvoyance'?	2 1 1 2 2	1. Where did the trio land after their plane was shot down? 2. What meant by the phrase 'parachuted to safety'? 3. How did the Second World War affect the countries involved? 4. Why did World War 2 break out? 5. If you were Dupuis, what would you do to save when questioned by the Germans?	1 2 4 7 7

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5	1. Explain in your own words the phrase 'maiden voyage'?	2	1. What were the dangers that Bill and his friends faced during their escape?	4
	2. Why do the American and Russian governments take ESP seriously?	2	2. Why do you think the Dupuis helped the airmen?	4
	3. What are the various forms of ESP discussed in the article?	1	3. If you had been in Maurice's situation, would you tell the Germans about the Resistance?	5
	4. If you could have ESP, which one would you chose and why?	4	4. Do you think the RAF Escapers' Society's show of gratitude to the Frenchmen and other people who helped them to escape suffice the people's sacrifice?	6
	5. Explain what psychokinesis is?	2	5. Do you think the article was written by an RAF Escaper? Why?	6
6	1. What is the name of the ship?	1	1. What is the meaning of the word 'occupied' as found in the text?	2
	2. Give 3 forms of ESP.	1		
	3. Why are the American and Russian scientists taking ESP seriously?	2	2. Why did Maurice refuse to the tell the truth? 3. How would you describe the Dupuis' sacrifice?	4
	4. What is telepathy?	1	4. Would you help any men regardless of their nationalities if they were in danger during wartime?	6
	5. Why psychokinesis is regarded as the most exciting form of ESP?	2	5. If you were in a position to help the escapees from their enemies, how could you help them?	7
				5
7	1. What took place in April 9th. 1912?	1	1. How do you think they were able to find the right direction to follow during their escape drama?	4
	2. What are the different forms of ESP?	1		
	3. Define in your own words what you understand by ESP ?	2	2. What would have happened to Bill and his friends if the Dupuis family did not hide them from the Germans?	4
	4. The phrase 'Something said about ESP may be fantastic' refers to...?	2	3. If you were Maurice, would you have helped the trio? Why?	7
	5. Explain what 'maiden voyage' means?	2	4. Do you think, during wartime, it is right for people to torture another human?	7
			5. Imagine that you are Mrs. Alliston, how would you show your gratitude to the Dupuis family?	7
8	1. Where did the *Titanic* start her voyage from?	1	1. They 'nursed Bill back to health', can you think of another word to replace 'nursed'?	2
	2. What has the incident of 'Titanic' got to do with ESP?	3	2. Why did the Germans failed to capture the British airmen?	4
	3. State the different forms of ESP?	1	3. Why did Maurice refrain from telling the truth though he was tortured by the Germans?	4
	4. Give an example of each type?	1	4. Do you think the Dupuis' sacrifice is worth taking?	6
	5. Which one would you prefer to have, if you could?	3	5. You are a member of RAF Escapers' Society. Write your experiences based on the rescue mission you had carried out to save the airmen?	5

9	1. What were the people doing at the dockside on April 9th. 1912?	2	1. What happened to Bill Alliston during the Second World War?	2
	2. Why was the woman anxious to stop the *Titanic* from sailing?	2	2. What is the meaning of the word 'nursed' in line 3 para.2?	2
	3. What had actually happened to the ship?	2	3. If you were Maurice Dupuis, would you reveal Bill's where about? Why?	7
	4. How many people were drowned?	1		
	5. List out the different forms of ESP?	1	4. Why do you think Maurice Dupuis helped the men?	4
			5. If you were in Bill's situation, how would you plan your escape?	3
10	1. What is meant by ESP?	2	1. Why did the Dupuis family take care of them?	4
	2. How many types of ESP mentioned in the text?	1	2. What would have happened if they were not found by the Dupuis family?	4
	3. When was the *Titanic* launched?	1	3. In what ways can you show your gratitude for the people who have helped the RAF men during the war? Imagine that you are one of their relatives?	7
	4. When did it sink?	1		
	5. What type of ESP did the woman possess?	1	4. How did the French Resistance Movement helped them to get out from France?	4
			5. If you were Maurice Dupuis, how would you react when you were being questioned and tortured by the Germans?	7

ANALYSIS OF LEVELS OF QUESTIONS
University of Manchester

TAX	PRE-TEST *Titanic*	SUM	%	POST-TEST *An Escape*	SUM	%
1	LITERAL	23	46.0	LITERAL	2	4.0
2	COMPREHENSION	24	48.0	COMPREHENSION	8	16.0
3	APPLICATION	2	4.0	APPLICATION	1	2.0
4	ANALYSIS	1	2.0	ANALYSIS	15	30.0
5	SYNTHESIS			SYNTHESIS	5	10.0
6	EVALUATION	-	-	EVALUATION	6	12.0
7	AFFECTIVE	-	-	AFFECTIVE	13	26.0
	TOTAL	50	100	TOTAL	50	100

Table 5.4(iv) Analysis of Levels of Questions at Manchester

5.5 Pilot study - Overall analysis of questions

1. Pre-test (*An Escape*) vs. post-test (*The Titanic*)

ANALYSIS OF QUESTIONS
University of Birmingham

TAX	PRETEST An Escape	f	%	m	sd	POSTTEST The Titanic	f	%	m	sd	Sig
1	LITERAL	14	40.0			LITERAL	1	2.9			
2	COMPREHENSION	19	54.3			COMPREHENSION	1	2.9			
3	APPLICATION	-	-			APPLICATION	1	2.9			
4	ANALYSIS	2	5.7	1.71	0.75	ANALYSIS	4	11.4	5.65	1.58	.000
5	SYNTHESIS	-	-			SYNTHESIS	8	22.8			
6	EVALUATION	-	-			EVALUATION	4	11.4			
7	AFFECTIVE	-	-			AFFECTIVE	16	45.7			
	TOTAL	35	100			TOTAL	35	100			

Table 5.5(i) Analysis of Questions at Birmingham

Key: f = frequency; m = means; sd = standard deviation; Sig = significant differences (Mann Whitney and Wilcoxon Tests) in terms of p values.

2. Pre-test (*The Titanic*) vs. Post-test (*An Escape*)

ANALYSIS OF QUESTIONS
University of Manchester

TAX	PRETEST The Titanic	f	%	m	sd	POSTTEST An Escape	f	%	m	sd	Sig
1	LITERAL	23	46.0			LITERAL	2	4.0			
2	COMPREHENSION	24	48.0			COMPREHENSION	8	16.0			
3	APPLICATION	2	4.0			APPLICATION	1	2.0			
4	ANALYSIS	1	2.0	1.60	0.67	ANALYSIS	15	30.0	4.62	1.83	.000
5	SYNTHESIS					SYNTHESIS	5	10.0			
6	EVALUATION	-	-			EVALUATION	6	12.0			
7	AFFECTIVE	-	-			AFFECTIVE	13	26.0			
	TOTAL	50	100			TOTAL	50	100			

Table 5.5(ii) Analysis of Questions at Manchester

3. Pre-test (*The Titanic* - Uni.of Man.) vs. Post-test (*The Titanic* - Uni. of Birmingham)

ANALYSIS OF QUESTIONS
Uni. of Manchester vs. Uni. of Birmingham

TAX	PRETEST The Titanic	f	%	m	sd	POSTTEST The Titanic	f	%	m	sd	Sig
1	LITERAL	23	46.0			LITERAL	1	2.9			
2	COMPREHENSION	24	48.0			COMPREHENSION	1	2.9			
3	APPLICATION	2	4.0			APPLICATION	1	2.9			
4	ANALYSIS	1	2.0	1.60	0.67	ANALYSIS	4	11.4	5.65	1.58	.000
5	SYNTHESIS					SYNTHESIS	8	22.8			
6	EVALUATION	-	-			EVALUATION	4	11.4			
7	AFFECTIVE	-	-			AFFECTIVE	16	45.7			
	TOTAL	50	100			TOTAL	35	100			

Table 5.5(iii) Analysis of Levels of Questions for "The Titanic" text

4. Pre-test (*An Escape* - Uni.of Birm) vs. Post-test (*An Escape* - Uni. of Manchester)

ANALYSIS OF QUESTIONS
Uni. of Birmingham vs. Uni. of Manchester

TAX	PRETEST An Escape	f	%	m	sd	POSTTEST An Escape	f	%	m	sd	Sig
1	LITERAL	14	40.0			LITERAL	2	4.0			
2	COMPREHENSION	19	54.3			COMPREHENSION	8	16.0			
3	APPLICATION	-	-			APPLICATION	1	2.0			
4	ANALYSIS	2	5.7	1.71	0.75	ANALYSIS	15	30.0	4.62	1.83	.000
5	SYNTHESIS					SYNTHESIS	5	10.0			
6	EVALUATION	-	-			EVALUATION	6	12.0			
7	AFFECTIVE	-	-			AFFECTIVE	13	26.0			
	TOTAL	35	100			TOTAL	50	100			

Table 5.5(iv) Analysis of Questions for "The Escape" text

5.6 ANALYSIS OF RC QUESTIONS

The analysis of RCQs designed by the teachers from the two universities was carried out by using the Cogaff taxonomy. The results in table 5.5(i) and (ii) clearly demonstrate:

    i.) Out of 85 RCQs designed by the subjects (from the two universities in tables 5.5(i) and (ii)) during the **pretest;** 80 (i.e. 94.1%) are of low-order or *literal* kinds. About 6% of the RCQs belong to the lower categories of the higher-order or *inference* types (i.e. *application* and *analysis*). None of the higher-order ones were from the last three of the higher-categories of *synthesis, evaluative* and *affective*.

    ii.) During the posttest, 73 (i.e. 85.8%) of the 85 RCQs belong to the higher-order, *inference* kinds. It is significant to note, 29 (i.e. 34.1%) of these *inference* questions were *affective*, 10 (8.5%) *evaluative*, 13 (15.3%) *synthesis*, and 19 (22.4%) *analysis*.

The RCQs designed during the pretest were generally of low-order or literal types. In marked contrast, there was a dramatic change in RCQ formulation during the post test as seen in 5.5(ii). The trend in designing low-order questions as repeatedly observed in many studies (Kissock & Iyortsuun, 1982; Perrott, 1982; Morgan & Saxton, 1991, to name a few) seems to recur in the present study, but significantly, only in the pretest. This could be attributed to a number of reasons (this is discussed in later chapters). One reason that contributes to this lack, as far as the pretest of the present study is concerned, is the lack of awareness of the use of question or comprehension taxonomies among the teachers in formulating questions. Another reason could be attributed to the fact that teachers are simply not concerned about designing higher-order questions despite being aware of their importance in encouraging critical discussions among the students. Further discussion of RCQs is provided in section 5.8c of this chapter.

5.7 ANALYSIS OF RC TASKS/ACTIVITIES

The RC tasks and activities are categorized using the framework suggested by Irwin (1991) known as the 'Basic Comprehension Processes' (CP). A discussion on why the CP was used in the analysis of tasks in the pilot study was provided in section 5.3 of this chapter. For practical purposes in the analysis of the tasks, the five different comprehension processes namely; **microprocesses, integrative processes, macroprocesses, elaborative processes** and **metacognitive processes** as originally suggested in the framework have been retained, with levels of thought processes ascribed by each process highlighted. Each process is either categorized as *non-inferential* (also known as *literal*) or *inferential* depending on the level of thought processes involved. *Non-inferential* (or *literal* interpretation) kinds of tasks will comprise **microprocesses, integrative processes, macroprocesses, and metacognitive processes,** while *inferential* interpretation will then be associated with the **elaborative processes** which consist of a number of sub-categories.

Briefly, **microprocesses** are displayed when a reader understands and selectively recalls ideas in individual sentences by deriving meaning from the individual idea units and decides which of these ideas to remember. **Integrative processes** describe when individual ideas are connected into a coherent whole in order for a reader to recall what they have read. Although the term 'inference' is used in describing this process i.e. slot-filling inferences, this term solely refers to the connections between clauses and sentences (not ideas) for Irwin states clearly that the term ''integrative processes' is used to refer to the processes involved in comprehending local connections only' (Irwin, 1991: 49). 'Local connections' are those that link individual sentences and clauses to each other as opposed to 'global connections' that link each individual clause and sentence to the main idea or focal event of the passage (Irwin, ibid.,). As microprocesses and integrative processes are free from inferential association and relate to information stored within the ambience of literal interpretation they are thus categorized as *non-inferential* or literal.

Macroprocesses activate and explain how ideas are connected and retained in memory more effectively when they are organized in an organizational form. The main topics in an organized text make up a kind of summary by which unnecessary details that may hamper retention have been deleted. This process also involves the use of an author's general organizational pattern to organize the reader's own memory representation. As the main characteristics of this process involve 'organizing' and 'summarizing' of the text in order to help in the understanding of the information, it does not relate directly as to what idea of information has been understood, hence, it is also *non-inferential* as no higher levels of thought processes have been associated with the process.

Metacognitive processes are strategies used by a reader in order to monitor his or her own cognitive processes in an effort to understand information. This might involve the process of selecting, evaluating or regulating one's strategies to control comprehension and long-term recall in order to benefit from text information. As in the case of macroprocesses, this process is a category in its own right and does not associate directly to the idea stated in the text. This process is also considered *non-inferential* for it explains the 'hows' rather than the 'whats' of the comprehension process.

Elaborative processes or **inferences,** on the other hand, involve the process of making inferences, not necessarily intended by the author and not required for literal information, in an effort to make sense of information. For instance, readers make a prediction about how the information relates to something similar they have experienced. Elaborations or inferences are those processes which are not necessary for microprocessing, integrative processing, or macroprocessing. Irwin sub-categorizes elaborations into five processes, namely: *making predictions, integrating the information with prior knowledge, forming mental images, responding affectively,* and *responding with higher-level thinking processes.*

The tasks are thus analysed using the following levels of comprehension processes with numbers shown which will be used in categorising tasks:

1.0 Microprocesses - non-inferential (literal)

2.0 Integrative processes - non-inferential (literal)

3.0 Macroprocesses - non-inferential (literal)

4.0 Metacognitive processes - non-inferentia (literal)

5.0 Elaborative processes - inferential

    5.1 Making predictions - inferential
    5.2 Prior knowledge elaboration - inferential
    5.3 Semantic mapping - inferential
    5.4 Higher Level Thought Processes (HLTP) - inferential
    5.5 HLTP - Application - inferential
    5.6 HLTP - Analysis - inferential
    5.7 HLTP - Synthesis - inferential
    6.0 HLTP - Evaluative - inferential
    7.0 HLTP - Affective - inferential
    (Details of the CP is provided in Appendix 5.5.2)

5.8a Results of RC Tasks (Pretest vs. Posttest)

The following tables represent the results of RC tasks constructed by the subjects of the pilot study carried out during the workshops discussed earlier.

The comprehension level of each task is denoted by the number assigned to each in the 'CP - types' column. The 'levels' column assigns whether a task is either *literal* or *inferential*. The term 'non-inferential' is also used to refer to *literal* tasks. The levels of comprehension used in categorising the RC tasks are as previously presented (see section 5.4).

Table 5.8a(i) presents the RC tasks constructed based on the text '*An Escape*' used during the pre-test at University of Birmingham while table 5.8a(ii) shows the RC tasks designed on '*The Titanic*' used during the post-test.

Table 5.8a(iii) presents the results of RC tasks constructed on '*The Titanic*' used during the pre-test at the Manchester University, while table 5.8a(iv) presents the RC tasks designed on '*An Escape*' used during the post-test. As in the case of RC questions, the manipulation of the two texts used during pre- and post tests was carried out in two different sequences to ascertain the versatility of any RC texts in yielding RC questions and tasks (see figure 5.4a).

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Each RC task formulated by the subjects from the two universities was coded in its original form as produced by the subjects in the 'tasks' column. Any corrections done by the researcher were limited only to a very few technical errors. The tables also demonstrate how each RCT is categorised according to its level of comprehension process or thought process by using the CP taxonomy designed by Irwin (1991).

5.8a(i) Reading comprehension tasks designed by the subjects

University of Birmingham (Pre-test)

Passage title: An Escape

| Tasks | Comprehension processes | |

(Group 1)	Types	Levels
1. Paragraphs from the text are jumbled up and students		
are asked to rearrange them in order according to the text.	1	literal
2. Cloze procedure - students are asked to fill in the blanks		
with appropriate referents.	2	literal
3. Students are asked to narrate the story using own words	1,2,3	literal

(Group 2)		
1. Write out a diary or personal report of Bill Aliston.	1,2,3	literal
2. Give a detailed chronology of the events that had taken		
place in the text.	1,2,3	literal
3. Write a summary of the text using the main ideas.	3	literal

(Group 3)

1. How many characters are there in this text? Describe each character?	3	literal
2. What are the words used to identify the soldiers?	1	literal
3. Write a short summary of what happened to the airmen and how they escaped?	3	literal

(Group 4)

1. Students are asked to unjumble the jumbled-up paragraphs.	3	literal
2. Cloze procedural test - words are deleted at every 7th.	2	literal
3. Based on a multiple choice questions (MCQ's), students are asked to form	3	literal
the story-line of the passage		
4. Students are asked to chart the route taken by the bombers.	3	literal

(Group 5)

1. Pre-reading - Some questions related to the topic are discussed with the students.	3	Literal
2. During reading - Students answer some MCQ's to test their understanding.	3	Literal
3. Some questions on vocabulary are asked.	1	Literal
4. Post-reading - Students answer some open-ended questions based on the text.	3	Literal

(Group 6)	Types	Levels
1. Students are given some true/false questions to answer.	1	Literal
2. Students are asked to rearrange the jumbled-up events into chronological order.	1	Literal
3. Students are given a list of dictionary meaning of certain words from the text, students are asked to choose the meaning of each word that best suited its context in the text.	1	Literal

(Group 7)		Literal
1. Rearrange jumbled-up paragraphs according to correct sequence.	1	Literal
2. Based on the map given in the text, chart the route taken by Bill and his friends after their plane was shot down until they reached England?	5.3	Inference
3. Students read the passage for five minutes. Students try to recall and write the summary of the passage.	3	Literal

Table 5.8a(ii) Reading comprehension tasks designed by the subjects
University of Birmingham - Post-test

Passage title: The Titanic

Tasks	Comprehension processes	
	Types	Levels
(Group 1)		
1. Students are asked to narrate any experiences they have on ESP?	5.2	Inference
2. Discuss in groups/paires of the advantages/disadvantages of ESP?	5.5	Inference
3. Write a plan on how you could convince a 'non-believer' about ESP?	5.5	Inference
~~(Group 2)~~		
1. List out the advantages and disadvantages of having psychokinesis power?	5.2	Inference
2. Imagine you were the captain of the Titanic and survived the tragedy, tell your experience minutes before it struck?	5.2	Inference
3. Explain the following terms; telepathy:.. claivoyance:.. psychokinesis:	1	Literal

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Tasks	Comprehension process	
	Types	Levels
(Group 3)		
1. State the meanings of the following words as stated in the text:	1	Literal
2. How else do you think ESP can be put to use by rival countries politically?	5.5	Inference
3. Imagine you were one of those in the ship? State what your feelings would be at the point of incident?	7.0	Inference

(Group 4)		
1. List out the usefulness of ESP during wartime?	5.5	Inference
2. What the advantages and disadvantages of ESP?	5.7	Inference
3. You are one of the newspaper reporters who happened to be at the dock at Southampton on that day. What would you have written in the newspaper?	5.2	Inference

Tasks	Comprehension process	
(Group 5)	**Types**	**Levels**
1. Imagine you were one of those in the crowd, what would you do to calm the woman down?	5.5	Inference
2. Supply the right prefixes to these words from the passage. List out other words that use similar prefixes.	1	Literal
3. If you were the woman who could predict the titanic tragedy, what would you have done/said to convince the people?	5.5/5.7	Inference

(Group 6)		
1. Group discussion - Exchange views on ESP and write out the main points discussed based on the following sub-headings; true/false, advantage/ disadvantages, logical/unlogical.	5.6/ 5.7	Inference
2. Debate on the topic: ESP can cause more harm to human's life if it is widely practiced.	5.5	Inference
3. Predict the consequences of ESP if used in future warfare.	5.1	Inference

(Group 7)		
1. If you were the manager of the company that owned the Titanic, what plans do you have in mind to console the bereaved families?	5.7	Inference
2. Imagine that you are given the choice to select one of the forms of ESP, which one would you prefer, and why?	6.0	Inference
3. If you wish to promote the study of psychokinesis how would you advertise it?	5.7	Inference

Table 5.8a(iii) Reading comprehension tasks designed by the subjects University of Manchester - Pretest		

Passage title: The Titanic

Tasks	Comprehension process	
(Group 1)	**Types**	**Levels**
1. Imagine that you were at the dockside who witnessed the incident that took place when the Titanic was leaving the harbour, relate it to your friend?	1,2,3	Literal
2. Identify the different forms of ESP?	1	Literal
3. Role-play: As a reporter, interview the people who were at the dock when the ship was leaving the harbour?	5	Inference

(Group 2)		
1. Pre-reading - watching a video on the 'sinking of the Titanic'. Students answer questions about the event.	3	Literal
2. Reading - Students answer questions based on the passage.	3	Literal
3. Transferring the text into graphic e.g. tree-diagram, tables.	3	Literal

(Group 3)		
1. Students sequence the jumble-up text.	1	Literal
2. Students are asked to produce non-linear representation of ESP.	3	Literal
3. Students do the cloze-procedural test at nth. word deletion.	2	Literal

(Group 4)		
1. Name the types of ESP? 1...........2. .... 3.	1	Literal
2. Match the descriptions with the types of ESP. (Descriptions and types are given as in the text).	1	Literal
3. The events are jumbled-up and students are asked to sequence them.	1	Literal

(Group 5)		
1. Students are asked to sequence the jumbled-up sentences.	1	Literal
2. Students are asked to identify the main ideas of the text and write them down.	1	Literal
3. Students are to summarize the text.	3	Literal

Passage title: The Titanic   Tasks   Comprehension process

(Group 6)	Tasks	Levels
1. Fill in the blanks with the right words. (Five statements are given with a blank in each of them and students are required to fill up the blanks with the right words).	1	Literal
2. Students are asked to complete a tree-diagram based on the text.	2	Literal
3. Students are asked to summarize the text.	3	Literal

(Group 7)		
1. Order the following verbs according to their sequence of events in the article; shouted, killed, sank, watched, hit, pushed, steamed.	1	Literal
2. Fill in the tree diagram. Forms of ESP Definition ESP —— 1...................... .... —— 2...................... .... —— 3...................... .... —— 4......................	2	Literal
3. Give a summary of the passage.	3	Literal

(Group 8)		
1. Students are to sequence jumbled-up sentences.	1	Literal
2. Students are to draw a tree diagram describing major ideas.	3	Literal
3. Students are to write a summary of the passage.	3	Literal

(Group 9)		
1. Students are given 5 questions related to the text.	3	Literal
2. Students are to fill in tables with right answers based on the text.	1,2	Literal
3. Students are to sequence the jumbled-up statements.	1	Literal

(Group 10)		
1. Students are to fill in the information in a grid provided.	1	Literal
2. Students to draw a tree diagram.	3	Literal
3. Students to answer MCQ's based on the text.	3	Literal

Table 6.8a(iii)

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Table 5.8a(iv) Reading comprehension tasks designed by the subjects

University of Manchester - Posttest

Passage title: An Escape   Task   Comprehension processes

(Group 1)	Types	Levels
1. As a close relative of the Dupuis, how would you comfort his wife, Genevieve?	7.0	Inference
2. Draw a plan on how you could raise money for the families whose husbands and fathers helped the RAF men.	5.5	Inference
3. If you are Maurice Dupuis, would you tell the truth?	5.7	Inference

(Group 2)		
1. A map provided; students are asked to trace the routes taken by the escapees.	5.3	Inference
2. Students give an oral presentation of the routes taken.	3	Literal
3. Students are asked to character-analyse Dupuis.	5.6	Inference

(Group 3)		
1. List out the effects of war.	5.5	Inference
2. Plan another escape route for the trio.	5.5	Inference
3. Give a brief background of the second world war drawing from the events.	5.2	Inference

(Group 4)		
1. What is meant by the phrase 'parachuted to safety'?	1	Literal
2. How did the WW2 affect the relationships among the countries involved?	5.5	Inference
3. If you were in Dupuis' position, what would you do to save yourself?	5.5	Inference

(Group 5)		
1. In the map provided, trace Bill's journey.	3	Literal
2. Imagine you are Genevieve Dupuis. Write a letter to Bill describing what happened after Bill left.	5.5	Inference
3. Design an advertisement to raise funds to be sent to the families of people who helped the RAF men to escape.	5.5	Inference

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(Group 6)

1. Give your views of how could the RAF escaper's society benefit the members?	6.0	Inference
2. Using the information given in the text, state the similarity and differences between the French Resistance and the German soldiers?	6.0	Inference
3. What do you think will happen to the RAF British soldiers if they were found earlier before they met the Dupuis	5.6	Inference

(Group 7)

	Types	Levels
1. If you were a member of the French Resistance movement, plan an escape route for the RAF men.	5.5	Inference
2. Fill in the flow chart provided with the correct action words according to the sequence of events.	3	Literal
3. If you were in the RAF British situation what will your plan of escape be?	5.5	Inference

(Group 8)

1. Write in the boxes the names of countries Bill, Maurice and Jones started and ended their journey?	3	Literal
2. Draw a tree-diagram of the events that had taken place using main ideas of the story.	3	Literal
3. Draw out an advertisement asking for new members to join in the Escaper's society?	5.5	Inference

(Group 9)

1. Students are asked to rearrange sequence of events.	1,2,3	Literal
2. Students are asked to match words with meanings.	1	Literal
3. You are the commander of the French Resistance Movement. Device a search and rescue operation to save Bill and his men.	5.5	Inference

(Group 10)

1. Students are to rearrange sequence of events in a flow chart.	3	Literal
2. Discuss the sacrifice made by Dupuis family in order to save the RAF men.	6.0	Inference
3. Device a method in which, as a member of the Escaper's society, you can attract more people to join in.	7.0	Inference

Comprehension processes: 1. Microprocesses (MI); 2. Integrative processes (INT); 3. Macroprocesses (MA)

4. Metacognitive processes (MC); 5. Elaborative processes (Inferences) (EP)

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5.8b PILOT STUDY - OVERALL ANALYSIS OF TASKS

Table 5.8b(i) TASK - PRETEST VS. POSTTEST (UNIVERSITY OF BIRMINGHAM)

CP	PRETEST An Escape	n	%	m	sd	POSTTEST The Titanic	n	%	m	sd	Sig
1	Microprocesses	5	23.8			Microprocesses	3	14.3			
2	Integrative	4	19.0			Integrative					
3	Macroprocesses	11	52.4			Macroprocesses					
4	Metacognitive	1	4.8			Metacognitive					
5	Elaboratives					Elaborative					
5.1	Making Predictions					Making Predictions	1	4.8			
5.2	Prior Knowledge			2.44	1.06	Prior Knowledge	3	14.3	5.13	1.84	.000
5.3	Semantic Mapping					Semantic Mapping					
5.4	Higher Level TP					Higher Level TP	4	19.0			
5.5	HLTP(application)					HLTP(application)					
5.6	HLTP(analysis)					HLTP(analysis)	1	4.8			
5.7	HLTP(synthesis)					HLTP(synthesis)	4	19.0			
6.0	HLTP(evaluation)					HLTP(evaluation)	1	4.8			
7.0	Affective Knowledge					Affective Knowledge	4	19.0			
	TOTAL	21	100			*TOTAL*	21	100			

Table 5.8b(i)

5.8b(ii) TASK - PRE-TEST VS. POST-TEST (UNIVERSITY OF MANCHESTER)

CP	PRETEST The Titanic	n	%	m	sd	POSTTEST An Escape	n	%	m	sd	Sig
1	Microprocesses	12	40.0			Microprocesses	3	10.0			
2	Integrative	4	13.3			Integrative					
3	Macroprocesses	12	40.0			Macroprocesses	7	23.3			
4	Metacognitive					Metacognitive					
5	Elaboratives	2	6.7			Elaborative					
5.1	Making Predictions					Making Predictions	1	3.3			
5.2	Prior Knowledge			2.20	1.19	Prior Knowledge	2	6.7	4.55	1.69	.000
5.3	Semantic Mapping					Semantic Mapping					
5.4	Higher Level TP					Higher Level TP	10	33.3			
5.5	HLTP(application)					HLTP(application)					
5.6	HLTP(analysis)					HLTP(analysis)	2	6.7			
5.7	HLTP(synthesis)					HLTP(synthesis)					
6.0	HLTP(evaluation)					HLTP(evaluation)	3	10.0			
7.0	Affective Response					Affective Response	2	6.7			
	TOTAL	30	100			*TOTAL*	30	100			

Table 5.8b(ii)

Tables 5.8b(i) and (ii) present the overall analyses of the RC task (RCT) formulation by the subjects from Universities of Birmingham (UB) and Manchester (UM). The tables provide the statistical measurement of central tendencies such as the *mean, standard deviation* and *correlation coefficients*, derived from SPSS for Windows, version 6.0. In comparing the means (using Mann Whitney and Wilcoxon tests), there are noticeable differences between the pretest and posttest in both RCQs (table 5.8b(i)) and RCTs (table 5.8b(ii)). In fact, the differences are very highly significant in both cases ($p<.000$). The Pearson Correlation Coefficients, likewise, provide the significance correlation between the two results (Detailed discussion on the analysis of results is provided in the later sections in

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this chapter). The two tables (5.8b(i) and (ii)) provide the basis for further tables and discussion on the RCT analysis in the following paragraphs.

5.8c RC QUESTION AND TASK DESIGN: SUMMARY OF RESULTS

The following tables present the summary of RC questions and tasks designed in the pre and post tests using different texts in table 5.8c(i); using the same text in 5.8c(ii) and 5.8c(iii). This is followed by the correlation of RC texts (table 5.8c(iv) and discussion on the summary of results (5.8d) and concluding remarks (5.8e(ii)).

Table 5.8c(i) Pretest vs. posttest using *different* reading texts in question/task design - *The Titanic* and *An Escape*

TYPES	QUESTIONS (N = 85)			TASKS (N = 51)	
LEVELS	PRE-TEST	POST-TEST		PRE-TEST	POST-TEST
LITERAL	82 (94.1%)	15 (17.6%)		49 (96.1%)	13 (25.5%)
INFERENCES	3 (5.9%)	70 (82.4%)		2 (3.9%)	38 (74.5%)
TOTAL	85 (100)	85 (100)		51 (100)	51 (100)

Table 5.8c(ii) Pretest vs. posttest using *the same* reading text in questions/tasks design - *Titanic*

TYPES	QUESTIONS			TASKS	
LEVELS	PRE-TEST n = 50	POST-TEST n = 35		PRE-TEST n = 30	POST-TEST n = 21
LITERAL	49 (98%)	4 (11.4%)		28 (93.3%)	3 (14.3%)
INFERENCES	1 (2%)	31 (88.6%)		2 (6.7%)	18 (85.7%)
TOTAL	50 (100)	35 (100)		30 (100)	21 (100)

Table 5.8c(iii) Pretest vs. posttest using *the same* reading text in questions/tasks design - *An Escape*

TYPES	QUESTIONS			TASKS	
LEVELS	PRE-TEST n = 35	POST-TEST n = 50		PRE-TEST n = 21	POST-TEST n = 30
LITERAL	33 (94.3%)	11 (22%)		20 (95.2%)	10 (33.3%)
INFERENCES	2 (5.7%)	39 (78%)		1 (4.8%)	20 (66.7%)
TOTAL	35 (100)	50 (100)		21 (100)	30 (100)

5.8c(iv) Correlation of Reading texts (*The Titanic* and *An Escape*) used in formulating RCQs and RCTs

As two different texts were used at two different places of the pilot study, it is necessary to determine whether both are significantly correlated in levels of difficulty and complexity. By using the Spearman Correlation Coefficients, the correlation of the two reading texts used in the formulation of both RCQs and RCTs was carried out in two phases using both RCQs and RCTs;

I) Pretest vs. pretest (*An Escape* vs. *The Titanic*)

i) Pretest vs. posttest (*An Escape* vs. *The Titanic*);

ii) Posttest vs. posttest (*An Escape* vs. *The Titanic*)

The results are tabulated in table 5.8c(iv):

	RCQs			RCTs		
	I	**ii**	**iii**	**I**	**ii**	**iii**
Correlation	.1662	.7993	.8198	.3601	.8680	.4324
N cases	35	35	35	21	21	35
Significant level	.34	.000***	.000***	.109	.000***	.009**

Table 5.8c(iv) Significance Correlation between *The Titanic* and *An Escape*

Based on Spearman Correlation Coefficients with $p<0.05$, it was discovered that the reading texts used in the formulation of RCQs and RCTs, *The Titanic* and *An Escape*, were very highly correlated as shown in all phases of RCQs and RCTs in table 6.8C(iv). Four out of six tests run indicated that both RC texts are very highly correlated ($p<.01$) in terms of levels of thought processes.

5.8d SUMMARY OF RESULTS - INTERPRETATION AND DISCUSSION

Table 5.8d(i) *QUESTION DESIGN - PRE-TEST Vs. POST-TEST*

	The Titanic vs An Escape		The Titanic		The Escape	
LEVELS	PRE-TEST	POST-TEST	PRE-TEST	POST-TEST	PRE-TEST	POST-TEST
LITERAL	82 (94.1%)	15 (17.6%)	49(98%)	4(11.4%)	33(94.3%)	11(22%)
INFERENCES	3(5.9%)	70 (82.4%)	1(2%)	31(88.6%)	2(5.7%)	39(78%)
TOTAL	85 (100)	85 (100)	50(100)	35(100)	35(100)	50(100)

Table 5.8d(i)

With reference to table 5.8d(i), it is discovered that during the *pre-intervention* stage, out of 85 questions based on the two different passages (i.e. *Titanic, An Escape*) designed by the subjects from both universities, 82 (94.1%) were literal. 3 (5.9%) of the inferential types were derived from the 'analysis' level. There was a dramatic change in the levels of questions produced by the subjects after the *intervention*. At the post-intervention stage, 70 (82.4%) of the 85 questions produced were of the inferential types where more than 95 % (more than 52 questions) were comprised of the higher categories of inferences (i.e. synthesis, evaluation and affective).

This trend was consistently preserved in the inter-subjects' question production when the same text was used. Based on the passage *Titanic*, the text used at the pre-intervention stage (University of Manchester), 98% (49 out of 50) of the questions were *literal*. In contrast, the same passage elicited 88.5% *inferences* i.e. 31 out of 35 questions when it was used at the post-intervention stage (University of Birmingham).

Similarly, while 94.3% (33 out of 35) of the questions derived from the passage *An Escape* were *literal* when it was used at the pre-intervention stage (University of Birmingham), 78% (39 out of 50) were *inferences* (comprising *analysis, synthesis, evaluation* or *affective* types) when the same text was used during the post-intervention stage (University of Manchester).

The results with both reading texts (The Titanic and An Escape) were very highly correlated at .84 (average) as shown in table 5.8c(iv).

Table 5.8d(ii) *TASKS DESIGN: PRE-TEST vs. POST-TEST*

LEVELS	The Titanic vs An Escape		The Titanic		The Escape	
	PRE-TEST	POST-TEST	PRE-TEST	POST-TEST	PRE-TEST	POST-TEST
LITERAL	48 (94.1%)	13 (25.5%)	28 (93.3%)	3 (14.3%)	20 (95.2%)	10 (33.3%)
INFERENCES	3 (5.9%)	38 (74.5%)	2 (6.7%)	18 (85.7%)	1 (4.8%)	20 (66.7%)
TOTAL	51 (100)	51 (100)	30 (100)	21 (100)	21 (100)	30 (100)

Table 5.8d(ii)

Using the Comprehension Processes taxonomy proposed by Irwin (1991), the tasks designed by the subjects during the pre and post intervention stages were analyzed. With reference to table 5.8d(ii), it can be seen that out of 51 tasks formulated on the two different passages (i.e. *Titanic, An Escape*), 94.1% of the tasks (i.e. 48 out of 51) were *literal* while less than 6% of *inferential* types produced belong to the 'analysis', level of elaboration (Irwin's category of higher level thinking processes) or *inferences* as normally referred to in this study.

At the post-intervention stage, the tasks formulated based on the two passages were enhanced in their levels of thought processes when 74.5% of the tasks (i.e. 38 out of 51) were of the '*elaboration*' or *inferences* category. A similar trend in task construction is observed when the same text is used as a basis of construction. Comparing its use at pre- and post-intervention stages; when the passage *Titanic* was first used as a task-formulation instrument at the pre-intervention stage (University of Manchester), 93.3% of the tasks (28 out of 30) were of a *literal* nature (comprising *microprocesses, integrative processes, macroprocesses, metacognitive processes*). When the same text was used during the post-intervention stage (University of Birmingham), the tasks drawn out surged to a dramatic 85.7% *inferences* or '*elaboration*' (comprising *predictions, prior knowledge elaborations, semantic mapping, affective responses, different types of higher-level-thinking processes*) covering 18 out of 21 tasks formulated. Similarly,

the passage *An Escape*, which elicited less than 5% inferential tasks (only 1 out of 21) during the pre-intervention stage, (University of Birmingham), elicited 66.7% of the higher level thought processes when used during the post-intervention stage (University of Manchester).

More generally, from an examination of RCQs and RCTs produced during the pre and post-intervention stages at the two universities, it can be concluded that a set of higher-order RCQs and RCTs can be formulated when teachers know about, and apply, the Cogaff taxonomy.

Table 5.8e *CORRELATION BETWEEN QUESTIONS AND TASKS*

	PRETEST		POSTTEST	
	(i)	(ii)	(i)	(ii)
RCQ	Var 1	Var 3	Var 2	Var 8
RCT	Var 9	Var 11	Var 10	Var 12
2 tailed p	.875	.584	.014	.03
Observed Sig. Lev	> 0.05	> 0.05	< 0.05*	< 0.05*

*significant ** highly significant *** very highly significant

Key

Variable 1 (An escape) - Pretest RCQ (BU)	Variable 2 (Titanic) - Posttest RCQ (BU)
Variable 9 (An escape) - Pretest RCT (BU)	Variable 10 (Titanic) - Posttest RCT(BU)
Variable 3 (Titanic) - Pretest RCQ (MU)	Variable 8 (An escape) - Posttest RCQ (MU)
Variable 11 (Titanic) - Prstest RCT (MU)	Variable 12 (An escape) - Posttest RCT (MU)

Based on table 5.8e, it is noticed that the pretest RCQs and RCTs, with $p = 0.875$ and 0.584 for the respective texts used, were not significantly correlated (The significance level is determined at $p < 0.05$). This indicates that there was no relationship or correlation between RCQs and RCTs formulated during the pretest or pre-intervention stage. On the other hand, p is observed to be at .014 and .030 (p is 0.05) for similar texts used during the posttest or post-intervention stage carried out at the two universities. This indicates that the RCQs formulated during

the posttests were highly correlated with the RCTs. It is worth recalling there was a reversal in the use of the two texts during the pretest and posttest sessions carried out at the two universities, i.e. when one is used during the pretest at one university, it is alternatively used during the posttest at the other university, and *vice-versa.*

Descriptively, at the pre-intervention stage, more than 94% of the **RCQs** designed were of the *literal* kinds (tables **5.5**(i) to (iv)). Likewise, more than 90% of the RCTs produced at similar stage were also *literal* or *low-order* in nature, judging by their levels of thought processes (tables 5.8b(i) and (ii)). The idea of using a taxonomy introduced in the intervention had resulted in a more positive and flexible way of handling the tasks since more than 80% (average) of the questions produced were judged 'high' in terms of types and levels. The questions produced at the post-intervention stage were more varied in levels of thought processes (refer to tables **5.5**(i), **5.5**(ii), **5.5**(iii), **5.5**(iv)).

In a close parallel, an upsurge in levels of thought processes was conspicuously present in the **RCTs** formulated at the post-intervention stage. There was an average of more than 75% of *inferential* or *elaborative* types of tasks noticeable in all the post-intervention stages carried out in the pilot study (tables 5.8b(i), 5.8b(ii)). Significantly, the idea of the comprehension taxonomy and processes propagated in the intervention had shown that a set of varied RC questions produced can be suggestive of equally varied tasks.

5.9 Analysis of questionnaires
Subjects: Universities of Manchester and Birmingham (n = 40)

From the analysis of the questionnaire (see Appendix 7.1), it is discovered that 92.5% - (refer to 6.9b(i)) of the subjects had more than 10 years teaching experience prior to their enrolment into the universities. All of them are assumed to be well-informed and to have a good understanding of the nature and demands of

the KBSM currently being practiced in all primary and secondary schools in Malaysia, because the KBSM, (initiated in the early eighties) had already been well established long before they embarked on their current studies in the UK.

As the subjects are all in the final year of their studies, their responses to the questions would presumably reflect the knowledge they had so far gained from the full range of courses (particularly reading courses) they had already completed in Malaysia or in Britain, apart from knowledge resulting from their classroom teaching experience. The teachers' experiences is tabulated as follows.

Table 5.9a Teaching experience

Years teaching	Frequency	Valid Percent
1-3 years	1	2.5
4-6 years	1	2.5
7-9 years	1	2.5
10 years and above	37	92.5
Total	40	100.0

Most of the subjects (92.5%), who were already in their final year of study, had teaching experience of ten years and more before embarking on their present degree programme in B.Ed in TESOL in the two universities of Birmingham and Manchester. It can be assumed that they had some maturity of thought and experience in dealing with the questions put forward in the questionnaire. The other 3 subjects (7.5%) had, in between them, 1 to 9 years of experience.

Table 5.9b summarises the teachers' responses concerning how confident they felt about their knowledge of reading skills and the teaching and designing of RC activities.

Table 5.9b Perceived knowledge vs. classroom practice

Variable	Read. Skills		Teach. Of RC		Design. RC Q/T		Comp. Tax	
Value Lable	CL	CP	CL	CP	CL	CP	CL	CP
1. Very confident	72.5	72.5	90.0	87.5	67.5	55.0	5.0	
2. Fairly confident	27.5	25.0	10.0	12.5	32.5	45.0	80.0	85.0
3. Not very confident								
4. Not at all confident								
5. Missing values		2.5					15.0	15.0
Mean	1.27	1.35	1.10	1.12	1.32	1.45	2.40	2.45
Standard deviation	0.45	0.73	0.30	0.33	0.47	0.50	1.12	1.08
Corr. Coefficient	.782		.882		.767		.981	
Sig. Of correlation	.000		.000		.000		.000	

In view of their training and experience it is not surprising that 72.5% of the subjects from both universities claimed that they felt '*very confident*' about the 'knowledge of reading skills' and the 'practice of it in classroom teaching' (Table 5.9b). The rest claimed to be '*fairly confident*' on this subject. The Spearman Correlation Coefficients were used to determine the correlation between 'knowledge' and 'practice'. 'Knowledge of reading skills' and the 'classroom practice of it'; both were found to be highly correlated at .782. This was very highly significant at $p < .000$.

While 90% of them professed to be '*very confident*' with their knowledge of the 'teaching of reading comprehension', 87.5% felt this in relation to the 'classroom practice of it'. The 'knowledge' and 'practice' of this variable were very highly correlated at .882, at a very highly significant level of $p < .000$.

The designing of RC questions and tasks was observed to be highly correlated at .767 (very highly significant at $p < .000$), 67.5% felt '*very confident*' as opposed to 55.0% who claimed to be so in the practice of this knowledge in classroom teaching.

With reference to the knowledge about 'Comprehension Taxonomies' and 'classroom practice of it', 80.0% of the subjects asserted that they were only '*fairly confident*' with the idea and 85.0% were '*fairly confident*' when asked about practising it in a classroom teaching. Both 'knowledge' and 'practice' of this subject were very highly correlated at .981, which is very highly significant at $p < .000$. Only 5.0% of the respondents were '*very confident*' with regard to the subject. This is clearly a very much lower percentage than the percentages who felt 'very confident' about teaching reading and about designing comprehension questions and tasks. One possible explanation is that the students could have, to a certain extent, been exposed to the idea yet there seems to be a conspicuous lack in the overall exposure and classroom practice of it.

Based on the difference in the mean scores displayed in table 5.9b, the subjects' confidence levels can be stated in descending order as follows:

i) With the means between 'knowledge' and 'practice' recorded at 1.10 and 1.12 respectively (both s.d. of 0.3), the majority of the subjects felt that the 'teaching of Reading Comprehension' was the aspect they were most confident about as compared to the other related areas.

ii) The next area they felt 'very confident' about was 'Reading skills' where the mean scores for both 'knowledge' and 'practice' were recorded at 1.27 and 1.35 respectively.

(iii) 'Designing of RC questions and tasks' was perceived to be third in the hierarchy of confidence levels of the subjects where the mean scores for 'knowledge' and 'practice' were observed to be 1.32 and 1.45 respectively.

(iv) 'Knowledge about Comprehension Taxonomies' fell within the lowest range of confidence levels as displayed in the mean scores of both 'knowledge' and practice, which were observed at 2.40 and 2.45 respectively.

The subjects' relative 'inadequacy' in handling issues related to 'Comprehension Taxonomies' merits further investigation. Subjects' rated their initial training with regard to how well certain aspects of the teaching of reading comprehension had been covered. This depends, of course, to some extent on their memory of these courses, which in most cases were ten or more years earlier.

Table 5.9c Lecture input received on certain subjects

VARIABLES	RC Method	RC Quest. Design	RC task design	App. of RC skills in c/r prac.
1. Very well	95.0	60.0	60.0	85.0
2. Slightly well	5.0	40.0	35.0	12.5
3. Not very well				
4. Not at all				
5. Missing values			5.0	2.5
Mean	1.050	1.400	1.550	1.225
Standard deviation	.221	.496	.932	.698

With reference to table 5.9c, the impressive trends in the subject's perception of the questions raised pertaining to reading comprehension were consistent and persisted in the subsequent questions. With the mean score of 1.05 (s.d .221), 95.0% emphasized that 'lectures on RC methodology' were 'very well' covered.

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At a mean score of 1.4 (s.d .49), 60.0% of them claimed this with regard to the 'designing of RC questions'. This was matched by the same number of subjects, 60.0%, who claimed so in relation to how much the subject of 'RC tasks' had been covered in the lectures they had followed. The mean score was 1.5 (s.d .93). When asked how much coverage they had received on 'the application of RC skills in classroom teaching', with the mean score of 1.2 (s.d .69), 85.0% said it was covered 'very well'.

Comparing the mean scores of all the subjects mentioned in the question, lecture input received by the respondents on certain subjects can be arranged in the order of importance as follows;

i) with the mean score of 1.05 (s.d. .22), the subjects claimed that the input on 'RC Method' was the most well covered during their classroom lectures received as compared to the other related areas.

ii) 'Application of RC skills in c/r practice' was second in terms of input received, with a mean score of 1.2 (s.d .69).

iii) The next 'very well' covered area as perceived by the respondents was the 'RC question design', with a mean of 1.4 (s.d .49).

iv) The least 'very well' lecture input received, as claimed by the subjects, was observed to be related to the 'RC task design' where the mean was 1.5 and s.d. .93. Generally, the teachers clearly felt very positively about the lecture input they had received regarding most areas of teaching reading.

If the results can be interpreted as a reflection of the subjects' levels of confidence in handling various subjects pertaining to RC instructions, it can be assumed that the input on the 'designing of RC questions and tasks' were the most 'lacking in term of coverage', which demands further attention.

Table 5.9d Levels of confidence on certain subjects

VARIABLES	Use of children's Lit	Select. Of RC tasks	Directing Quest. to Teach. Obj	Relating Quest. to Tasks	Ass. of RC tasks	Know where to get help
1. Very confident	97.5	92.5	50.0	7.5	7.5	100
2. Fairly confident	2.5	7.5	50.0	92.5	92.5	
3. Not very confident						
4. Not at all confident						
5. Missing values						
Mean	1.1	1.075	1.5	1.925	2.225	1
Standard deviation	.632	.267	.267	.267	.800	.000

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· With reference to table 5.9d, on the topic of 'how confident they are in using children's literature', It was observed that 97.5% were '*very confident*'. The mean was observed at 1.1 (s.d .63), recording a 'very high' confident level. Indeed. 92.5% claimed the same on the topic of 'selecting RC tasks' for classroom teaching. The mean was observed at 1.0 (s.d .26).

On the subject of 'directing RC questions to teaching objectives' their '*very confident*' level went down to 50.0% (mean=.26, s.d=.26). The confidence level went down further to the range of '*fairly confident*' as stated by 92.5% of the subjects (where the mean and s.d were 1.9 and .26 respectively) when confronting the topic on 'relating RC questions to RC tasks'.

With the mean and s.d. observed at 2.2 and .8 respectively, the '*fairly confident*' level of the subject related to 'assessment of RC tasks' remained the same when 92.5% admitted to being only '*fairly confident*' with regard to the subject in relation to classroom instructions. Overall, all subjects felt '*very confident*' on the subject of 'where to get help' related to RC instructions.

From the results reported above, it can be assumed that the three major topics that may pose a significant threat to the confidence of the subjects, if they are required to handle the task, in order of difficulty, are;

1. 'Directing RC questions to teaching objectives' (mean and s.d. of 1.5 and .26 respectively).

2. 'Relating RC questions to tasks' (mean and s.d. of 1.9 and .26 respectively).

3. 'Assessment of RC tasks' (mean and s.d. of 2.2 and .8 respectively) seemed to be to most problematic area faced by the subjects.

Generally, the subjects' responses to all the questions related to the topic under study for both stages - pre and post, were very impressive. Most of the responses to all questions related to the teaching of reading and reading comprehension were associated with the highest degree of rankings while the rest were second highest. Teachers, in responding to such a questionnaire, might of

course be unwilling to give negative responses since this might imply criticism of their training or of the authorities who make decisions about such training. It is difficult to ascertain exactly how influential such a cultural factor of 'face' or 'respect' might influence the results, but it is worth noticing that, if it does have an effect, it would presumably have the same effect for all such related items on the questionnaire. This point applies also to the factor of 'memory'. As there is not much difference in the degree of responses related by each subject on both sets of questionnaires (i.e. pre and post), the researcher felt that this was not significant. The only peculiar difference worth mentioning is the fact that more than 65% of the subjects agreed that comprehension taxonomies provide them with 'practical and pragmatic' directions in the formulation of RC questions and tasks.

The remarks made by some of the subjects in the 'post-questionnaire' could be summed up as, "*The idea would definitely give rise to an interesting and practical way of handling RC questions and tasks for the teachers and challenging for the students, in line with what is postulated and suggested by the new curriculum - KBSM*". The new curriculum has made it clear that, "*Reading objectives would endeavour students to be able not only to master and understand reading passages but also to invoke inferential responses and creative thinking*" (Pukal Latihan KBSM, 1993: 15). One cannot see the significance of the claims made by the subjects on any knowledge related to comprehension taxonomies and reading comprehension until one sees how the tasks are actually handled in a classroom situation.

The balance between the claims and practice for the actuality of the knowledge perceived by the subjects, as portrayed in the questionnaire, can only be justified when they put it into practice on paper when required to do so. The RC questions and tasks designed by them during the workshop arguably reflect a truer picture of the subjects' capability in handling the task.

5.9e Students' perceived knowledge: Interpretation and conclusions

Based on the significant differences of means displayed and discussed in 5.9b which related to the students' perception over various related issues such as; a.) 'students' perceived knowledge vs. Classroom practice of the knowledge'; b.) 'lecture input received on certain subjects' (table 5.9c); and c.) 'students' levels of confidence on certain subjects' as in table 5.9d; the following interpretations and suggestions are made;

a). The teachers' 'Knowledge about CT and classroom practice of it', where mean scores for both were observed at 2.40 and 2.45 (table 5.9b) respectively, seemed to be the most 'lacking' as far as the subjects' confidence levels are concerned.

b) With regard to the 'lecture input received on certain subjects', two areas, namely; 'RC question design' and 'task design' (mean scores at 1.4 and 1.5 respectively, displayed in table 5.9c) were claimed to be 'less covered' areas as far as lecture input is concerned.

c) In looking at the 'subjects' confidence levels on certain areas (see table 5.9d); aspects related directly to RC questions and tasks such as 'directing RC questions to teaching objectives', 'relating questions to tasks' and 'assessment of RC tasks' seem to be asking for serious concern and consideration when mean scores of each were observed at 1.5, 1.9 and 2.2 respectively.

To put it simply, could the relatively inadequate lecture input received by the subjects over 'RC question design' and 'RC task design'(mean scores of 1.4 and 1.5 respectively) seen in table 5.9c have any significant effect and 'parallelism' with the poor confidence levels displayed by the subjects on related topics such as; 'directing question to objective' (mean = 1.5, table 5.9d); 'relating questions to tasks' (mean = 1.9, table 5.9d); and 'assessment of RC tasks' (mean = 2.2, table 5.9d). Looking at the subjects' 'perceived knowledge vs. classroom practice' which again displayed a discouraging performance on related topics such as 'Designing of RC questions and tasks (mean scores at 1.32 and 1.45 respectively)' and 'Knowledge about CT (where mean scores for both were 2.4 and

2.45 respectively), it can be assumed that the subjects' perceived knowledge was considerably 'lacking' in RCQ-RCT-related topics. As this topic is one of the main concerns of this research study, it will be further examined in the field study, in the hope of finding significant answers in line with the objectives outlined for this research.

5.9f PERCEPTION vs. REALITY

Some of the claims made by some subjects in their responses in the questionnaire were at variance with what they produced in the actual tasks during pre-intervention stages. Whereas 80% of the subjects (table 5.9b) claimed to be very confident with the idea of comprehension taxonomies this was not evident when more than 94% of the questions and 75% (average) of the tasks designed were of the literal or non-inferential types. Perhaps, the change of confidence levels of 85% (table 5.9b) of them to 'the fairly confident' level in practising the idea in the classroom practice bears testimony to their actual capability. It is also possible that many teachers felt confident that they knew about comprehension taxonomies but did not, in fact, apply them or did not appreciate the value of applying the full range of question types. How far this might represent their normal practice is not clear at this stage. It is not the intention of the researcher to discuss every variable described in the questionnaire here; they will be analysed and discussed in more detail in the chapter on the main field work.

5.9g CONCLUSION

The preceding results and discussion based on information gained from the questionnaires which elicited the subjects' perceived knowledge on issues about the teaching and learning of reading comprehension, comprehension taxomies, RCQs and RCTs have brought forth the following significant points:

i.   The UK pilot study shows how each subject is capable of producing a wide range of questions and tasks in types and levels if s/he is equipped with the

knowledge of the Cognitive-affective taxonomy and Comprehension Processes in handling RC questions and tasks.

ii. From the angle of text-types, the study presents some evidence against the notion that one particular text would only produce one 'particular type or level' of questions or tasks. It has been demonstrated how the same text can be utilised for a wide range of questions and tasks in types and levels providing the designer is aware of the knowledge and use of the taxonomy of questions and comprehension processes (and uses the full range of question/task types) while handling the tasks, as proposed in the study.

An implication that can be derived from this finding (which is useful for the main study) is that RC questions and tasks are independent of text-types; any text has the potential of eliciting a wide range of questions and tasks in terms of levels and thought processes. Evidence for this potentiality is further strengthened when the high correlation between the reading texts used in the pilot study is considered (although a lot more investigation with different types of texts would be needed before firm conclusions can be drawn).

iii. The results provide ample support for the notion that there is a strong correlation between questions and tasks when they are designed using the knowledge of question taxonomy/comprehension processes. Deliberate exposure may be required in order for any subject to be able to design a wide range of questions and tasks for more challenging classroom teaching and learning in reading comprehension lessons.

iv. Teachers' levels of confidence or perception of 'having knowledge' over some idea may not necessarily be valid, unless proven so practically. Based on the questionnaire, the claim of 80 % of the subjects to be well-versed with the idea of the taxonomy and comprehension processes in handling RC questions/tasks was in contradiction with their actual questions and tasks, considering that more than 90% of the questions and tasks produced

by them at the pre-intervention stage were literal in nature. They were, however, able to produce more diversified questions and tasks in terms of types and levels during the post-intervention stage. Crucially, this extended range included more cognitively challenging questions and tasks.

Apart from accommodating the secondary school students, the application of the Cogaff taxonomy has also proved practicable for teachers of primary school children. On the request of some student teachers in the UK who were completing a PGCE (Post Graduate Certificate of Education) at the School of Education, University of Leicester, two workshops using the Cogaff taxonomy in designing Reading Comprehension questions and tasks were carried out in November 1996. The student teachers, who were working with children ranging from 5 to 10 years old, used reading passages selected from texts prescribed by their schools in the question/ task construction. Briefly, at the beginning of the sessions, the results of the Pilot study (carried out in the two universities in the UK) were reported to the PGCE students. After a brief question and answer session which was followed by question and task constructing session based on some RC texts, they were then asked to construct the questions and tasks based on the texts appropriate for their students. The subjects were able to produce more divergent questions appropriate for their intended pupils at the end of the workshops.

The results and discussion based on the data as presented have accomplished the objectives of the pilot study as stated at the onset of this section and paved the way for a better understanding and handling of the main study.

The next chapter will discuss the perceived knowledge of the subjects of the main study (drawn from UPM and some secondary schools in Malaysia) over issues pertaining to RC questions and tasks and the teaching of Reading Comprehension lessons.

CHAPTER SIX

RESEARCH FINDINGS:

TEACHERS' PERCEIVED KNOWLEDGE OF RC QUESTIONS AND TASKS

6.0 Introduction

This chapter presents a discussion of the subjects' perceived knowledge about RC questions and tasks in the main study. Questionnaires responses were elicited from a total of **133 subjects** who made up the **treatment** and the **control** groups. The **treatment** group (consisting of 110 subjects) comprised 52 in-service and 48 pre-service teachers (in their seventh semester) who were currently reading for a B.Ed in TESL at UPM. The other 6 subjects of the treatment group were trained teachers (with B.Ed TESL degrees from local and foreign universities) selected from three secondary schools in Negeri Sembilan, a state in Malaysia (see Chapter One for details). The remaining 27 subjects made up the **control** groups; 25 fifth semester students reading for a similar degree at UPM, and 2 trained teachers from TMS school (see Chapter One for details).The purpose of this chapter is to investigate the subjects' perceptions about questions and tasks in order to establish background information related to the subjects' awareness of the topic under study. Their perceptions may indicate as to what needs to be added and emphasized in their training and future development and this, in turn, provides significant impetus to the overall scope, width and depth of the main study.

6.1 Questionnaire

In this main study, questionnaires were used as another means of data collection for the subjects' perceptions about RC questions and tasks. As detailed in Chapter One, each subject completed the questionnaire as a separate activity during the workshop session. The subjects' perceived knowledge of RC questions and tasks collected via the questionnaires will provide background information which is crucial in understanding the subjects' overall performance in the actual design of RC questions and tasks, the main data sought in this study. The questions are divided into two sections:

personal and knowledge based. Questions 1 to 5 (refer to questionnaire in appendix 7.1) which asked for personal information, are not explicitly discussed in relation to the subject matter (i.e. RC Questions and tasks) in this chapter. The main discussion of the questionnaire starts with question 6 and considers responses to the questions in the order in which they were asked. The open-ended questions call for the subjects' creative and critical responses with regard to issues pertaining to RC questions and tasks. As such, the subjects' wide ranging responses were analyzed by using the method known as 'thematic analysis', where all the responses are grouped according to their themes. Detailed discussion of the subjects' responses is presented below.

Q6 - What models (e.g. RC viewed globally or as `skills') were you

taught about in the designing of RC questions/tasks or activities?

The aims of this question are:

i. to find out the subjects' view or knowledge about any Reading Comprehension Models used in the designing of RC questions and activities;

ii. to find out later whether any knowledge as claimed is actually being applied in the constructions of RC questions and tasks.

Table 6.1.1 Analysis of Results of Q6 - (RCQ)

N with responses = 61   N with no responses = 39 ['N' denotes the number of subjects' responses]

THEME	N	%
1. Pre - While - Post reading quest.	5	8.2
2. Bloom's Taxonomy	5	8.2
3. Skimming/scanning	13	21.2
4.Topdown/Bottomup/Interactive/Co mmunicative	22	36.0
5.Implicit/Explicit/ Schema Theory	2	3.3
6. Easy to difficult	8	13.1
7. Skill-based questions	4	6.6
8. WH questions	1	1.6
TOTAL	61	100

Table 6.1.1 illustrates the themes of the responses received from the subjects in relation to the question 'What models (e.g. RC viewed globally or as 'skills') were you taught about in the designing of RC questions and tasks' asked in question 6. The themes listed, 1 - 8 were based on the free responses derived from the subjects' responses on the question.

39% of the subjects were unresponsive about this question as a whole. As it was made explicit to the subjects at the onset of the session that an unanswered question would be regarded as an indication of the subject's ignorance or 'no knowledge' of the issue raised in the particular question, it might be concluded that 39% of the subjects did not feel knowledgeable of any particular models used in the designing of questions for reading comprehension instruction. Thus a high percentage of the teachers were apparently not taught these basic aspects of teaching reading, or did not know about them.

36.0% of the subjects from those who responded cited 'top-down', 'bottom-up'; of which about half mentioned further 'interactive' and 'communicative' approaches in the construction of the RC questions. In the bottom-up conceptual framework of reading, reading is regarded as a process which proceeds from the level of perception of written stimuli into words, syntactic organization of words into phrases and sentences, association of meaning to the sentences through use of concepts and schemas for assimilating the incoming information, and finally, reasoning in reading processes and storage of meaning (Singer and Donlan, 1980). The bottom-up conceptual framework of reading encompasses beliefs that a student's comprehension of a reading text depends largely on his mastery of discrete subskills of reading e.g. recognition of words to comprehend the text and mastering and word recognition skills in order to read well (Goodman, 1967). The bottom-up approach tends to assume that through the understanding of details (such as word meanings, sentence meanings) readers will build up a general comprehension of the text. This is sometimes successful but carries the danger that

a major focus on details inhibits overall comprehension, as is commonly observed by ESL teachers.

The top-down approach was offered by Goodman (1967) in place of the bottom up view of reading whereby the reading process is viewed as a "psycholinguistic guessing game". He suggests that efficient readers use background knowledge to direct attention to pointed stimuli in a selective manner, and these stimuli are then used to confirm or 'disconfirm' the reader's expectations. Top-down approaches tend to use reader's background knowledge in conjunction with text prediction skills to encourage readers to achieve a general comprehension of a text without necessarily reading every detail. A danger with this approach is that important details (eg. registered signals of arguments, such as discourse markers and conjunctions) may be overlooked, leading to distorted understanding. A second hazard is that there may be mismatches between a reader's background knowledge and text schemas. Gove (1983) illustrates how retelling is a way of assessing reading comprehension in the top-down conceptual framework of reading. How could one infer from the text when one is retelling? Gove further elaborates that this informal assessment technique provides opportunities for readers to rehearse and to interpret the author's message in their own words. The top-down conceptual framework of reading comprises beliefs that students: (1) should use semantic and syntactic cues in addition to graphic cues to decipher unrecognized words; (2) can comprehend a text even when they are unable to recognize every word in it; and (3) learn to read through meaningful activities in which they read, write, speak and listen (Gove 1983).

When (1) subsumes a text-based stimuli, (2) and (3) imply that comprehension takes place within the limit of what is being presented in a reading text. The RC questions and activities constructed using this approach would only be effective in eliciting text-based information. It is difficult to judge whether any inferential thoughts are displayed when a learner is engaged in activities driven by questions that emphasize deciphering of unrecognized words and learning to read through meaningful activities presented in a text. From the present responses it is

not possible to draw conclusions about the extent of subjects' actual knowledge of these aspects (but see the later analysis of their RC tasks); however, it is clear that only a small proportion claim knowledge of them.

Knowledge of an Interactive approach (theme 4 in table 6.1.1), was claimed by 36% of the respondents. This is an extension of the bottom-up and top-down approaches. In this view, the reading process involves the simultaneous operation of bottom-up and top-down processing of the text read. It is claimed that reading in this light utilizes the process of combining textual information with the background knowledge a reader brings to a text (see Widdowson, 1979). A reader's background knowledge is only engaged within the literal representation of the reading text for the interactive approach, which subsumes the interaction that occurs between the text and the reader in the chain-operation of bottom-up and top-down processes.

As for the 'communicative approach', knowledge of this model was claimed by 36% of the respondents (theme 4, table 6.1.1). It aims at making a language learner become communicatively competent. As this has been the stated goal of many other methods, in the communicative approach this notion is expanded. Communicative competence involves being able to use the language appropriate to a given social context. To do this students need knowledge of the language forms, meanings, and functions (Freeman, 1985). They need to know that many different forms can be used to perform a function and also that a single form can often serve a variety of functions. They must be able to choose from among these the most appropriate form, given the social context and the roles of the interlocutors. They must also be able to manage the process of negotiating meaning with their interlocutors (Freeman, 1985).

Harvey (1982) claims that a communication model functions through three key features which he calls *reference, intention,* and *uncertainty* that clearly emphasize what the communicative approach requires and what it offers. To be able to communicate, one must first of all refer to something (reference); this engagement has to be purposeful (intentional); and it is carried out in order to

resolve something (uncertainty). These notions are displayed through forms, meaning and functions. Arguably, these are the major linguistic components which only function to communicate an intention at the surface level. However, the cognitive elements which deal with knowledge, logic and imagination that operate at a deeper level of comprehension are much less emphasized, as are the affective components that relate to feelings and attitudes.

Table 6.1.2 Analysis of Results of Q6 - (RCT)

N with responses = 40   N with no responses = 60

THEME	N	%
1. Pre - While - Post reading tasks	4	10
2. Top-down/ Bottom-up	1	2.5
3.Skimming/scanning/ identify main point	19	47.5
4.Communicative/ Interactive	4	10
5. Skills-oriented	2	5.0
6. Rearrangement of statements	1	2.5
7. Task viewed globally	3	7.5
8.Predicting/ Inferencing/ Classification	4	10
9. MCQ/ Vocabulary/ Contextual	2	5.7
TOTAL	40	100

Table 6.1.2 presents the responses and percentages of teachers claiming knowledge of reading comprehension tasks, under the themes listed as 1 - 9. In table 6.1.2, 47.5 % of the respondents cited 'skimming and scanning' as the approach used in the designing of RC tasks/activities. These are apparently by far the best known techniques for formulating a reading task, i.e. the likely task the teachers give the students is "skim for the gist or main idea" or "scan for particular information". As much as they are required for the students to be able to understand the text, literally, skimming and scanning, however, contribute much less towards inculcating the higher order thought processes necessary for critical thinking. 21.2% of them had earlier (in RCQ) similarly mentioned skimming and scanning in their responses (refer to table 6.1.1). As these two strategies merely call for identification of facts within what is literally presented in a reading text, this

implies that the subjects were mainly exposed to the idea of extracting presented information rather than implied information from a reading text. This focus is within the ambit of teaching reading comprehension for '*information transfer* rather than driven by a search for meaning' (Cairney, 1990), it apparently centers on the teaching of reading comprehension which is skill-based rather than for real world, functional purposes. According to Durkin (1978-9), such activities do not teach, rather they simply test how well children can transfer information from one form to another.

10 % of the subjects cited 'communicative /interactive' approaches of RC tasks design (previously discussed), while 2.5% stated 'top-down/bottom-up' task designing approach (also discussed previously) and 17.5% either cited 'pre-while-post' reading tasks or 'tasks viewed globally'. RC tasks set out during, before or after a RC lesson is in progress (as suggested by the 'pre-while-post' task) do not explicitly suggest any particular form of activities. Rather, this aspect shows the time, staging or sequencing of a task rather than the specific nature of task (which can therefore be open to various approaches). When tasks are 'viewed globally' two things that come to mind are: tasks are either viewed as *micro* - tasks that deal with words, phrases, sentences etc. or as *macro* - tasks that deal with larger discourse structures (cf. bottom-up; top-down). They do not as such suggest particular levels of thought processes which might be involved, although higher levels of thought cannot necessarily be ruled out. Approaches such as 'skills-oriented', 'rearrangement of statements', 'MCQ/vocabulary/contextual', cited by 13.2% of the respondents, are textually-based activities which could be both literal and non-literal, divergent and non-divergent in nature depending on the types of task designed. At this stage it is quite difficult to ascertain what is actually meant such responses. This might, however, established once the actual RC tasks and activities designed by the respondents are explored (see Chapter Seven). Another way of investigating further would be to interview the teachers as a follow up but this could not be carried out because at the time when the research was carried out, the teachers were busy preparing for their course exams and for a teaching practice

session which was to follow soon after. As a result, they were not prepared to spare extra time on interviews. The fact that about 10% of the respondents stating 'predicting/inferencing/classification' as an approach used in RC task design indicates that they are aware of the importance of diversifying RC tasks/activities i.e. to include tasks of divergent types in RC lessons, though 'classification' does not readily fall into same category as the other two.

6.2 Q6b: What general approaches were you taught about the designing of Reading Comprehension (RC) Questions/Tasks (activities)?

The aims of this question are:

i. to find out whether the subjects have been taught/exposed to any particular approaches about the designing of RC questions/tasks (activities);

ii. to see any relationship between RC questions and tasks in relations to the approaches used.

Table 6.2.1 Results of Q 6b - RC Questions

N with responses = 42, N with no responses = 58,

Theme	N	%
1. Easy to difficult/Low order to higher order	10	23.8
2. Student centred/ communicative/ cooperative	8	19.1
3. Pre - While - Post Questions	6	14.2
4. Open-ended	7	16.6
5. Skimming/Scanning	1	2.4
6. Top-down / Bottom-up / Interactive Model	4	9.5
7. Skill-based as specified in the curriculum	1	2.4
8. Linguistic / Non linguistic	2	4.8
9. Bloom's/Hillock	3	7.2
TOTAL	42	100

Table 6.2.1

Tables 6.2.1 and 6.2.2 present the themes of responses and their percentages of teachers claiming knowledge of general approaches of designing RC questions and tasks respectively. Further discussion on the results are presented below.

Table 6.2.2 Results of Q6b - RC Tasks

N with responses = 61   N with no responses = 39

THEME	N	%
1.Matching/sequencing/inferencing	13	21.3
2. Easy to difficult	2	3.3
3.Student-centred/communicative/cooperative	6	9.9
4.skimming and scanning	2	3.3
5.Bottom-up/Top-down/Interactive	9	14.8
6.Word Identification/text-based tasks	4	6.5
7. Pre - While -Post activities	13	21.4
8. Information gap/MCQ	3	4.9
9. Skill-based according to curriculum specification	3	4.9
10. Role-play	1	1.6
11. Linguistic/Non-linguistic	1	1.6
12. According to Bloom's taxonomy	1	1.6
13. Task-based/process rather than product	1	1.6
14. Anything that can enhance student's understanding of text	2	3.3
TOTAL	61	100

6.2.3 Analysis of Results of Q6b - RCQ and RCT

The following discussion is either based on the results displayed in table 6.2.1 or table 6.2.2. There were indications shown by the subjects of knowledge of the notion that the questions should be ranged according to order or hierarchy of importance, noting 23.8% of the respondents who cited 'easy to difficult/low order to higher order' kinds of questions they claimed to have been exposed to. As there were no specific method(s) or approaches mentioned to address the issues raised by the responses, it was not possible to relate these particular responses to any levels of thought processes for they were stated rather ambiguously. It is not clear exactly what criteria the teachers would use to rank RC questions and tasks on a scale of easy-to-difficult. The knowledge of range or levels of RC questions was indicated in some instances yet their association with RC tasks and activities was negligible. Noting a particular case, one of the subjects suggested that questions should be designed from low order to higher order, yet had also suggested 'slot-filling' activities for the RC tasks. There is no apparent relationship in the thought

processes to be developed between RC questions and tasks. It is of concern to note that the relationship between the kinds of questions suggested with the kinds of tasks and RC activities proposed is not very consistent. This tendency was demonstrated in the teachers' actual construction of both RCQs and RCTs during the pretest session in the field work. It was noted that none of the RCQs constructed were significantly correlated with the RCTs (cf: table 7.2.2 in Chapter 7). Whereas 37.6% of the respondents suggested a diversified range of questions in the forms of 'easy to difficult/low order to higher order', 'open-ended' and 'Bloom's or Hillock's' kinds of RC questions (refer to themes 1, 4 and 9 in table 6.2.1); only 22.9% proposed similar kinds of tasks in the forms of 'matching/sequencing/inferencing' kinds of RC tasks and activities to match up with the proposed questions. Fewer than 2 % specifically mentioned 'taxonomy of Bloom'(in tables 6.2.1 and 6.2.2). The vast majority of the respondents (87.1%) consider themes other than *matching/sequencing/inferencing* and *Bloom's taxonomy* (in table 6.2.2), and suggested literal and non divergent RC tasks and activities to match up with 63.7% (who consider themes other than *easy to difficult, open-ended, Bloom's/Hillock's* in table 6.2.1) of similar kinds/levels of RC questions proposed by them. Among those worth mentioning at this stage, in the light of literal and non-inferential kinds of questions popularly mentioned by 63.7% of the respondents, are *student-centred/communicative/cooperative, pre-while-post, skimming/scanning, top-down/bottom-up/interactive, skills-based as specified in the KBSM curriculum* and *linguistic/nonlinguistic* (in table 6.2.1). This is in contrast to similar kinds of tasks mentioned by 87.1% which may include the approaches like; *easy to difficult, student-centred/communicative/cooperative, skimming and scanning, Bottom-up/top-down/interactive, word identification/text-based tasks, pre-while-post, information gaps, skills-based according to KBSM curriculum specification, role-play, linguistic/non-linguistic* and *task-based/process rather than product* (in table 6.2.2). Again, the match between 'what is claimed' and 'what is being practised' can only be established once the actual questions and tasks designed are analyzed (refer to Chapter 7).

The KBSM curriculum specification emphasizes that there should be a strong relationship between questions and tasks in the teaching of reading comprehension for it is clearly stipulated that RC tasks and activities designed should correspond with the skills listed in the curriculum specification. This also applies to the design of questions (Pukal Latihan KBSM, 1993).

6.3 Q7: How would you design reading comprehension questions and tasks

The aims of this question are:

i. to find out how the subjects would use the approaches previously
learned/understood in the designing of RC questions and tasks;

ii. to see if there is any relationship between RC questions and tasks designed.

The results in table 6.3.1 display the themes of responses and their percentages of the approaches used by the teachers in designing RC questions and tasks.

Table 6.3.1 Analysis of Results of Q7 - RC Questions

N with responses = 37, N with no responses = 63

THEME	N	%
1. True/false/MCQ	5	13.5
2. Questions designed based on the text and not on prior knowledge	15	40.6
3. Relevant questions	2	5.4
4. Challenging/interesting, educational & enjoyable - based on the text.	2	5.4
5. Yes/No answer questions that suit the students' level of comprehension	1	2.7
6. Any questions that help students to understand the text	2	5.4
7. Open-ended questions	2	5.4
8. Easy to difficult/ lower order to higher order/simple to complex	8	21.6
TOTAL	37	100

Table 6.3.1

Based on the analysis of the responses of this question shown in table 6.3.1, 63% of the respondents were unresponsive to this item. As each question in the questionnaire was sufficiently explained to the subjects at the outset of the session, it could be assumed that this absence of reply meant that a majority of the subjects were not aware of any particular approach of how to design RC questions and

tasks for instructional purposes. This is of some concern considering that they were in their final year of studies and had already completed the reading course (*BBI 354 - The Teaching of Reading Skills*).

The types of questions proposed by the subjects can be grouped into two major categories based on the levels of thought processes they sought to elicit namely; *literal* (convergent) and *inferential* (divergent) types. Types 1 - 6 (refer to table 6.3.1) which account for 73% of the responses are of the low level- literal or convergent type, leaving only 27% that could be categorized under the high level- inferential or divergent types. Any knowledge of any specific taxonomy of questions was not indicated, however.

6.3.2   Analysis of RC Tasks/activities

The tasks and activities suggested are analyzed based on a thematic analysis of the teachers' responses. The responses are grouped according to the theme expressed by each subject.   Considerable care is taken to ensure that each response is kept in its original form and wording as much as possible as to avoid unconscious manipulation in the process of classification. This retention of the original wording also readily permits the classifications to be re-checked and preserves, as far as possible, the subjects' intended meanings. It is found out that 66% of the subjects seem to be unaware of any specific method of designing RC tasks and activities judging from their lack of response to this question . The responses which were received are analyzed and tabulated below

The table and figure 6.3.2 present the analysis of RC tasks/activities as given by the teachers to question 7.

Table 6.3.2 Analysis of Results of RC tasks

N with responses = 34   N with no responses = 66

TASK-THEME	N	%
1. Filling in the blanks	3	8.8
2. Relevant tasks according to text/passage based	6	17.7
3. Using games relevant to the text	1	2.9
4. Interesting activities that involved students' participation e.g. role-play, communicative/student-centred	14	41.2
5. WH questions	1	2.9
6. Pre-while-post activities - relevant to the text	2	5.9
7. Tasks related to other skills e.g. writing/speaking	1	2.9
8. Brainstorming	1	2.9
9. Simple to complex/easy to difficult/predicting/anticipating	5	14.8
TOTAL	34	100
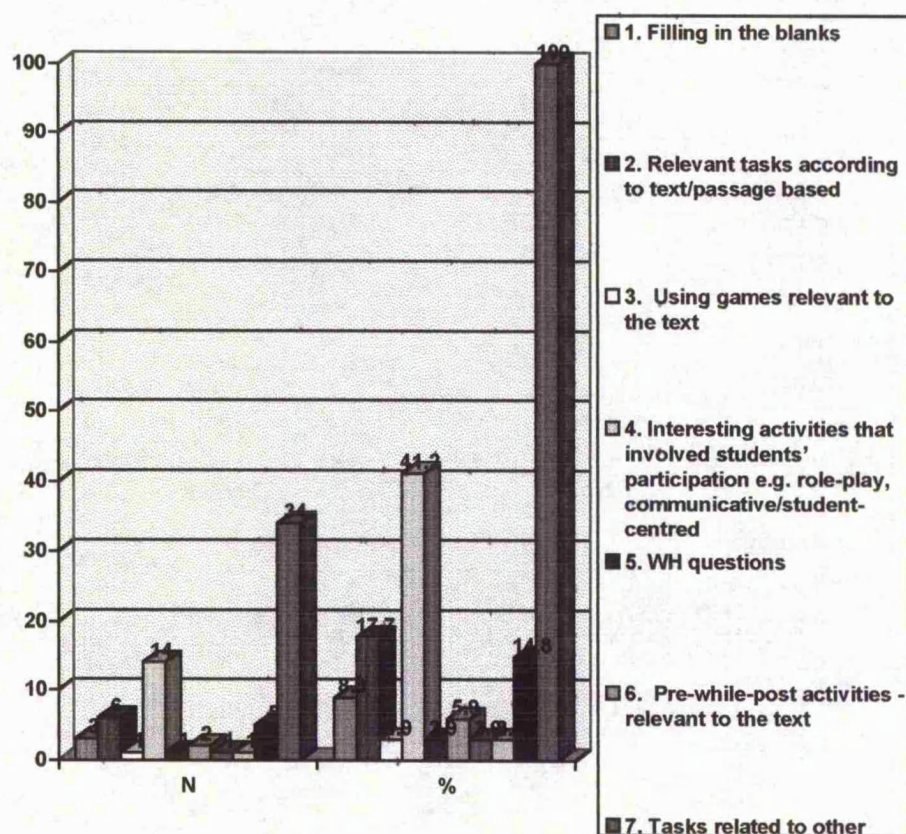
Figure 6.3.2   Analysis of RC Tasks

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Measurement of RC tasks/activities

For the purpose of practicality in the analysis of the responses on task design, the tasks are grouped into two major categories namely; *literal or convergent kinds* which comprised of 'knowledge/literal' and 'comprehension' types and *inferential kinds* which consisted of 'application', 'analysis', 'synthesis', 'evaluation' and 'affective' categories.

The categorization of tasks according to either *literal* or *inferential* categories represent respectively, *convergent* and *divergent* kinds of thought processes.

6.3.3 Analysis of results of RC tasks

Out of 34 responses elicited, it was found out that;

1.	11 (32.4%)	call for literal/convergent processes;
2.	18 (52.9%)	not clear*
3.	5 (14.7%)	inferential/divergent thinking

*not clear - They cannot be clearly categorized into any of the categories due to their vagueness in terms of ascribed thought processes (e.g. items 4, 6, 7 and 8 in table 6.3.3).

Considering literal tasks and the ones which are 'not clear'; about 95% of the RC tasks suggested do not support the development of inferential thought processes. Or, allowing that some unclear tasks might involve inferential thinking, one might conclude that only 14.7% of the tasks clearly involve inferential thinking while some (unclear) proportion of a further 52.9% might, do so. However, if the unclear category does not clearly involve inferential thinking for the researcher it is hardly likely to do so for students. The relationship between RC questions and tasks is minimal and not clearly indicated. This was evident in the manner of how the questions were constructed by during the pretest session in which none were significantly correlated with the corresponding tasks formulated (refer to table 7.2.2). Based on the types of questions and tasks suggested, there seems to be no consideration for tasks when questions are designed and vice versa. The awareness of the importance of such a relationship between these two major ingredients ofRC instruction was not, at that stage, recognizable with the majority of these teachers.

6.4 Q8 Did your course include consideration of comprehension taxonomies?

This question explicitly aims at determining whether any consideration of comprehension taxonomies was present in the reading course or other related courses that the teachers had followed. In the analysis of this question, the author has divided the subjects into two major groups, namely; the ex-matrics (n = 42) and the ex-teachers (n = 58). This is due to the following reasons;

(1) Q8 asks for specific information about the idea of comprehension taxonomies;
(2) The questions prior to this one are rather general in nature and ask for general information;
(3) Implications derived from this question could be drawn from the experiences of the two different groups of subjects rather than simply from the activities they had engaged in during their reading courses at UPM.

Table 6.4.1 Analysis of Responses and Discussion of Q8

	EX-Teachers	Ex-Matrics	All Subjects
No exposure to Compre -hension Taxonomies	20%	23%	43%
Some exposure	32%	25%	57%
Non-response	48%	52%	100%

As seen in table 6.4.1, 57% of the respondents cited that the reading course they had completed had considered the knowledge of comprehension taxonomies from the perspective of distinguishing comprehension for information, discussion and application. The other 43% indicated that they had not been exposed to the idea of comprehension taxonomies. There seems to be a slight difference in the nature of responses received from both the ex-teachers and ex-matrics (fresh-student teachers). A large number of the ex-teachers (32%) indicated that they had had some exposure to the comprehension taxonomies, while only about 25% of the fresh-student teachers said so. Further, the majority (23 out of 43) of those who claimed that they had had no exposure to RC taxonomies came from the fresh-student teachers.

The implications that could be drawn from the various responses are;

1. The ex-teachers could have received the exposure to RC taxonomies via the teacher training courses they had attended prior to their enrollment into the degree courses at UPM. In most cases such courses had been taken a decade or

more earlier. Alternatively, some may have encountered taxonomies on inset courses, but this seems unlikely.

2. Those who claimed to have had exposure to the idea of RC taxonomies (from both groups) may well have obtained them through their own reading or discussion with friends, not necessarily through lectures.

3. In any case, it seems clear that, on the whole, neither group had received systematic instruction in the use of the taxonomies. The minority who had some background may have obtained their knowledge at any time, but quite possibly ten years or more previously. Further as will be evident in several analyses of the teachers' responses, "knowledge of" or "knowing how to use" RC questions, tasks or taxonomies is a matter of degree. The exact extent of the teachers' knowledge is unclear: the questionnaire did not ask teachers to make this explicit (and to have included such explicitness would have rendered the questionnaire over long) nor did the teachers, in their replies, indicate that such knowledge is a matter of degree.

6.5 Q9 How do you relate comprehension taxonomies to the designing of reading comprehension questions?

The main objective of this question is to find out the extent of knowledge as claimed by the subjects with regard to the designing of comprehension questions. Their responses are tabulated in table 6.5.1 and discussed below.

Table 6.5.1 Analysis of Responses of Q9: Ex-matrics (n=42)

NO		YES	
'no'	'yes'	'no/not sure'	'yes'
35.7%	2.4%	28.5%	33.4%

Table 6.5.1 furnishes the responses of the forty-two Ex-Matrics on Q9 that determines how the idea of comprehension taxonomies can be applied in the design of RC questions. The responses were categorized into either 'Yes' or 'No' groups. It was nevertheless noticed that both sides expressed their 'affirmative'('yes' responses) or 'negative' ('no'/'not sure' responses) views on how the taxonomies

can be applied in designing RC questions regardless of their initial 'Yes' or 'No' responses expressed earlier (in table 6.5.1).

A total of 38.1% had said 'NO' to Q9. This indicates that they had not previously been exposed to the comprehension taxonomies, nevertheless, 2.4% of this group stated that *'a comprehension taxonomy provides the guidelines to RC question designing'*. They might have heard of or been exposed to the idea from sources other than the reading courses. 62% of the subjects said 'YES' to Q8, indicating that they had had some exposure to the idea of a RC taxonomy. Despite the claim, when asked to relate the idea to the RC question designing, 28.5% of those who responded affirmatively either stated 'no' or 'not sure'. This inconsistency could be due to the following reasons;

1. They were given some exposure to the idea but not explicitly shown how it could be applied to RC question designing. This would explain the confusing or vague replies.

2. They were exposed to the idea during informal discussions with friends/lecturers during their training courses. Again this could result in mixed or incomplete understanding.

3. They were given some formal exposure but this was not well understood - input does not always mean intake - or, as must happen sometimes, they had simply forgotten the details or applications.

The responses of the 33.4% of the subjects who said 'YES' to Q9 are thematically categorized according to their own suggestions as to how the idea of a question taxonomy should relate to RC question designing in table and figure 6.5.1a.

Table 6.5.1a Analysis of Responses of Q9: Ex- Matrics

THEME	%
1 The idea helps in arranging questions in the right order	14.2
2. The idea helps to develop chronological arrangement of questions which enhances RC lessons	2.4
3. The idea helps in designing questions relevant to passage	2.4
4. CT is important in developing the questions	4.8
5. The idea correlates RC questions to CT	4.8
6. The idea helps in designing questions according to student's levels of proficiency	4.8
7. Don't know and not sure	28.5
TOTAL	61.9
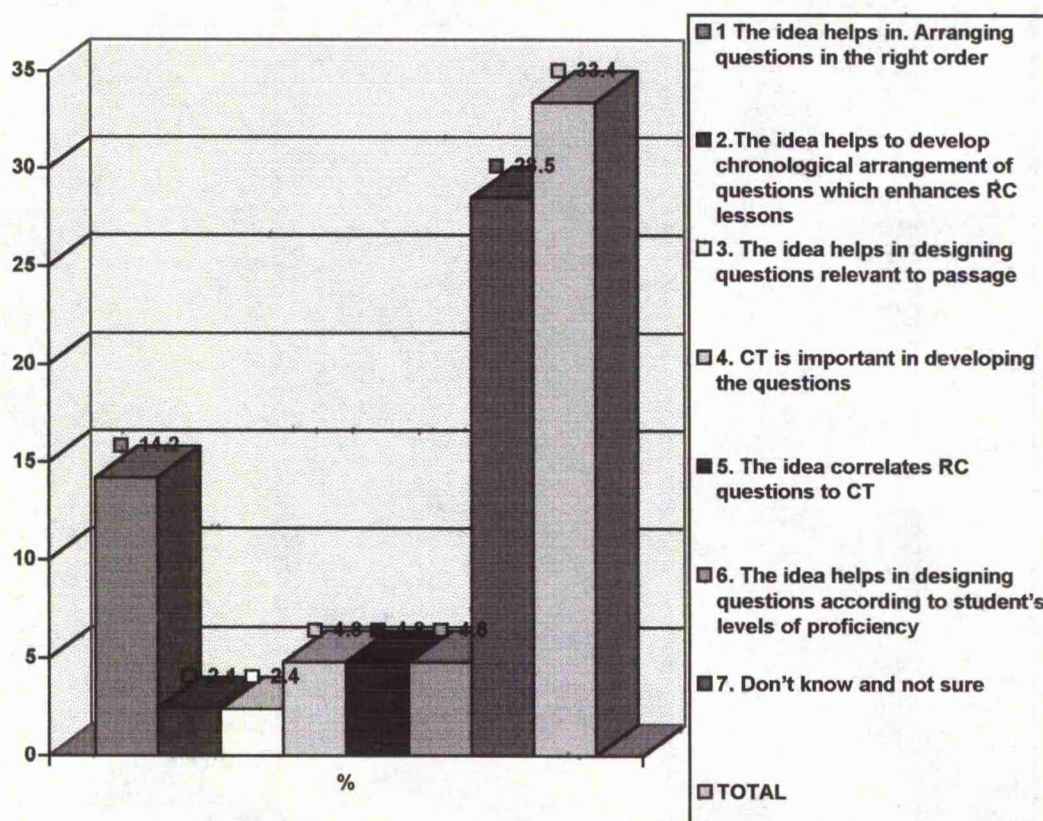
Figure 6.5.1a Analysis of Responses of Q9: (EM)

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Based on table and figure 6.5.1a, the responses from about 62% of the Ex-Matrics on Q9 are analyzed and discussed (about 38% had not responded to the question);

1. 'Arranging questions in the right order' stated by 14.2% of the subjects who claimed to have been exposed to the idea of relating a comprehension taxonomy to RC question designing does not indicate whether they have really understood the idea of how a taxonomy could be applied to question designing. 'Order' as stated in their response does not necessarily imply any particular levels or sequence of thought processes or educational objectives' which is the central theme of the taxonomy. It is unclear exactly what respondents meant by 'right' order: whether this means questions are arranged according to the sequence of answers in the text content, or according to levels of thought processes as suggested by the taxonomy of question, or some other order such as chronological order. Further, the term "right order" may be taken to imply that there is a fixed order - rather than, say, appropriate orders, with different choices of order according to combinations of criteria; if so, this seems excessively rigid.

2. The idea that a taxonomy 'helps to develop chronological arrangement of questions which will enhance RC lessons' as stated by 2.4% of the subjects is another misconception and mismatch between the idea of taxonomy as apparently understood by the students and the application ideally intended by proponents and published commentators on the comprehension taxonomy. A "chronological" arrangement of questions does not necessarily indicate enhancement in the levels of thought processes or educational objectives ascribed in the questions. Time or sequence of asking questions does not, per se, necessarily imply any particular quality of thinking in the answers. This confusion is made worse by the ambiguity of whether questions relate to orders of information in the text, to the order of asking and answering, or to the order of difficulty of answering, or to the order of cognitive processes involved in answering. These are conceptually independent notions, but respondents may relate to one, some, or all of them together, without explicit awareness.

3. While the responses such as;

    i. `by asking relevant questions' (2.4%);

    ii. 'comprehension taxonomies are important in developing the RC questions' (4.8%);

    iii. 'correlate questions to comprehension taxonomies'(4.8%) and

    iv. 'questions designed according to students' levels of proficiency' (16.8%) are irrelevant, reflecting indications of the subjects' lack of awareness of the idea that relates to the comprehension taxonomies that they claimed to have been exposed to.

Based on the analysis of responses made by the Ex-Matrics, the following assumptions fall in line;

1. It is difficult to understand why 62.0% of the ex-matrics claimed that they had been exposed to the idea of comprehension taxonomies in the reading courses that they had undergone at UPM while the other 38% claimed otherwise, considering that they had universally been exposed to the same academic courses. But upon analyzing the responses of those who claimed to have exposure the following implications could be derived:

(a) The idea of comprehension taxonomies that some of the subjects had been exposed to was not in fact specially included as a subject to be formally covered in the reading courses as stipulated in the formal syllabus. As stated earlier, some might have gained exposure to the idea informally through other sources, such as, through their own reading of relevant materials or through discussions with friends/lecturers.

(b) The vast majority of the subjects are aware of the relevance/importance of the idea of a comprehension taxonomy to be used as a tool in designing RC questions, judging from numerous references to this in the responses given. Some subjects may have simply forgotten; not everything in the course is understood, and not everything that is understood is remembered or used later.

(c) The subjects' understanding of the purposes and uses of comprehension taxonomies is minimal. More deliberate and systematic effort is required to

enhance teachers' understanding and knowledge of how they could be established as an effective tool of instructions in designing RC questions and tasks.

Table 6.5.2 Analysis of responses of Q9: Ex-teachers (n = 58)

NO		YES	
'no'	*'yes'*	*'no/not sure'*	*'yes'*
32.7%	6.8%	25.7%	34.8%

Table 6.5.2

'No-exposure to RC taxonomy'

As shown in table 6.5.2, 39.5% of the subjects from the ex-teachers' group stated that they have not been exposed to the idea of using comprehension taxonomies in the designing of RC questions. Despite that, 6.8% of them suggested that, for example, RC questions should be *'designed at all levels and they should provide sufficient practice for the children'* or that, *'questions should provide critical thinking that leads students to discover knowledge from known to unknown'*. The former reply is rather ambiguous considering the use of terms 'levels' and 'sufficient'. The latter implies that the subjects do, to a certain extent, have some idea of how questions should be designed yet lack explicitness as to what instrument might be used for the effective construction of RC questions that relate to both convergent and divergent knowledge and thought processes.

Table 6.5.2a Analysis of Responses of Q9: Ex-Teachers

THEME	%
1.Questions should relate to inferential skills and critical thinking	2.9
2. Proper formation of questions - items according to text, questions should identify main points	8.6
3. Questions designed according to student's levels of proficiency or skills of reading taught	11.5
4. Questions designed according to the levels of difficulty and familiarity of the text.	14.2
5.Questions designed from easy to difficult/simple to complex/known to unknown	20.0
6. Questions should be ordered from literal to inferential	14.2
7.Questions formed from stated fact to those that asked for personal opinion	2.9
8. Don't know and not sure	25.7
TOTAL	100
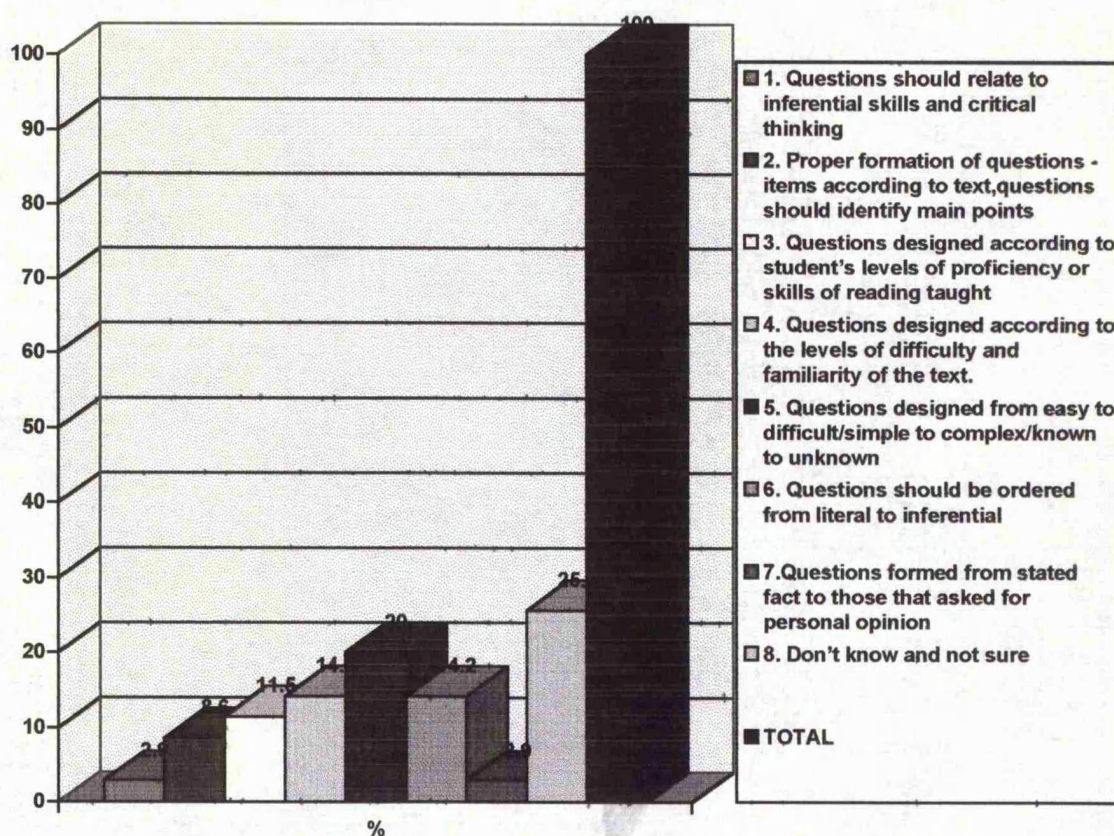
Figure 6.5.2a Analysis of Responses of Q9:Ex-Teachers

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Table and figure 6.5.2 a present the responses of the fifty-two Ex-Teachers on question 9 which asks for how they relate comprehension taxonomies to the designing of RC questions.

As shown in table 6.5.2, 60.5 % (i.e. 25.7% + 34.8%) of the subjects with some exposure to the idea of a comprehension taxonomy in relation to RC questions were largely divided in their responses: 25.7% stated either 'they do not know' or were 'unsure' of how the taxonomy should relate to RC question designing, despite their assertion of having some knowledge of the idea. A small number explicitly stated that *'the idea of using RC taxonomy is still vague'*. The different responses of those who claimed to have exposure to an RC taxonomy are analyzed according to the theme implied in each response. The open-ended responses put forward by each subject are categorized according to themes and systematically analyzed as follows;

(i) *'Questions should relate to inferential skills and critical thinking'* as suggested by 2.9% of the subjects 'with exposure' seems to neglect the importance of the literal and convergent knowledge in the comprehension and thought processes, or, at least, it prioritizes inferential and critical thinking. Questions designed exclusively according to this approach would deprive the learners from the ability to comprehend the facts that are literally stated but which are the pre-requisites for making inferences.

(ii) *'Proper formation of questions - items according to the text'* and *'Questions should identify main points'* as suggested by 8.6% of the subjects 'with exposure' strongly conceptualizes the use of literal questions in RC instruction. This largely contradicts the idea of using a wide range of questions in terms of levels and thought processes as suggested by the taxonomy, despite the subjects' claims of exposure.

(iii) *'Questions designed according to student's levels of proficiency or skills of reading taught'* as claimed by 11.5% of the subjects 'with exposure' is not parallel

with the idea of 'levels of thought processes' implied in the taxonomy. It is indicative of matching question form, or wording, to students' language levels.

(iv) The responses which state that *'questions designed according to the levels of difficulty and familiarity of the text'* as proposed by 14.2% of the subjects with exposure to CT do not correspond to the idea as suggested. The proposal does not indicate any consideration of different levels of knowledge or cognitive processes which are intended to be triggered in the construction of the questions.

(v) *'Questions are designed from easy to difficult/simple to complex/known to unknown'* as claimed by 20% of the subjects with exposure has implications for the appropriate knowledge and skills regarding how RC questions should be designed yet more explicit explanations are required. The notion 'easy to difficult, 'simple to complex', and 'known to unknown' does not necessarily implicate different levels of cognitive processes suggested by the taxonomy in relation to RC questions. 'Easy to difficult' could refer to linguistic complexity, as could 'simple to complex', while 'known to unknown' might refer to previous known general knowledge and not necessarily to working out the 'unknown' through a careful consideration of implications. It is more likely, in fact, that subjects are aware of some need to match asking questions with general educational principles - these three mentioned are well known general principles of exposition in teaching.

(vi) The following responses which suggest:

(a) *'Questions should be ordered from literal to inferential levels'* and,

(b) *'from stated fact to those that asked for personal opinion'* as claimed by 17.1% of the subjects with exposure show a considerable knowledge of how RC questions should be designed according to the principles behind the taxonomies. Nevertheless, as with the previous cases, more specific references are required as to how the task should be dealt with. Overall, only about 17% of the subjects claiming to have exposure to CT are considered to be valid in their claims on the evidence of their suggestions. Surprisingly, the vast majority of those who claimed to have been exposed to CT were hardly able to substantiate their claims in their

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responses and ideas suggested in relation to CT (although alternative explanations also need to be considered, as discussed).

Questions 10, 11 and 12 as respectively shown in tables 6.6.1(i) and (ii), 6.7.1, and 6.8.1 are statistically analyzed based on some statements to which subjects respond on a four point scale. The responses were analyzed using SPSS Version 6.0 for Windows.

6.6 - Q10 *At the end of all the reading course(s) that you have been exposed to how confident do you feel about the following areas;*

a.   knowledge about the reading skills;
b.   practice in the application of this knowledge (item a) in the classroom;
c.   knowledge about the teaching of Reading Comprehension as a subject;
d.   practice in the application of this knowledge (item c) in the classroom;
e.   knowledge about strategies of designing Reading Comprehension (RC)
        tasks/activities;
f.   practice in the application of this knowledge (item e) in the classroom;
g.   knowledge about Comprehension Taxonomies (CT);
h.   practice in the application of this knowledge (item g) in the classroom.

Table 6.6.1(i) shows the subjects' (EM) responses according the four scales ranging from 'not at all confident' to 'very confident'. Table 6.6.1(ii) is the modification of table 6.6.1(i) where the four scales were condensed into two major scales: a.) A combination of 'Not at all/Not very Confident', and b.)'Fairly/Very Confident'. Table 6.6.1(iii) displays the responses on the same question by the Ex-Teachers (ET).

Table 6.6.1(i) Analysis of Results of Q10 - Ex-matrics

Item	missing values	not at all conf.	not very conf	fairly conf.	Very conf.	M	sd	Corr	Sig
Value label		4	3	2	1				
a. Know. Ab. Reading skills	0.0	0.0	26.2	64.3	9.5	2.16	.58		
b. C/room practice about (a)	0.0	0.0	35.7	59.5	4.8	3.31	.56	.8090	.000
c. Know. Ab. Teach. of RC	2.4	0.0	26.2	69.0	2.4	2.40	1.14		
d. C/room practice of (c)	0.0	0.0	42.9	57.1	0.0	2.42	.50	.7220	.000
e. Know. Ab. Stra. In RC task design	2.4	0.0	54.8	42.9	0.0	2.71	1.11		
f. C/room practice of (e)	0.0	0.0	71.4	28.6	0.0	2.71	.45	.7194	.000
g. Know. Ab. Comp. Tax (CT)	0.0	19.0	66.7	14.3	0.0	3.04	.58		
h. C/room application of (g)		19.0	64.3	16.7	0.0	3.02	.60	.9681	.000

Table 6.6.1(ii) Analysis of Results of Q10 - Ex-matrics

Item	missing values	not at all / not very confident	fairly/very confident
Value label		2	1
a. Know. Ab. Reading skills	0.0	26.2	73.8
b. C/room practice about (a)	0.0	35.7	64.3
c. Know. Ab. teach. of RC	2.4	26.2	71.4
d. C/room practice of (c)	0.0	42.9	57.1
e. Know. Ab. stra. In RC task design	2.4	54.8	42.8
f. C/room practice of (e)	0.0	71.4	28.6
g. Know. Ab. Comp. Tax	0.0	85.7	14.3
h. C/room application of (g)		83.3	16.7

The analysis and discussion of the results under question 10 displayed in Table 6.6.1 focuses on two major aims;

1) to determine the subjects' (Ex-Matrics) levels of confidence on the knowledge prescribed in each case;
2) to determine the correlation between knowledge and practice as claimed by each subject.

Basically, question 10 consists of four pairs of inter-related statements. The first of each pair elicits information on knowledge related to RC instructions, while the second seeks for the subjects' levels of confidence in relation to the first in line with classroom practice. The responses elicited are discussed below.

As shown in table 6.6.1(ii) the 'less-confidence' level of the subjects' knowledge on areas such as 'reading skills' (10a), 'teaching of Reading Comprehension' (10c), 'strategies in RC task design' (10e), and 'comprehension taxonomies' (10g) was seen to be increasing from 10a to 10g (i.e. from 26.2% to 85.7%). A similar pattern was seen in the respective 'classroom practice' of the knowledge as seen in 10b (35.7%), 10d (42.9%), 10f (71.4%), and 10h(83.3%). In both cases 'RC task design and Comprehension taxonomy' had emerged as less confident aspects.

This is an indication of a serious need for a focused approach as far as RC instructions are concerned especially in dealing with the knowledge related to CT and the construction of RC tasks and activities. These are the main concern of this study.

Table 6.6.1(iii) Analysis of Results of Q10 (Ex-Teachers)

Item	missing values	not at all conf.	not very conf	fairly conf.	Very conf.	mean	sd	Corr	Sig
Value label	9	4	3	2	1				
a. Know. Ab. Reading skills	22.4	0.0	20.7	50.0	6.9	3.70	2.91		
b. C/room practice about (a)	17.2	0.0	24.1	55.2	3.4	3.41	2.61	.9502	.000
c. Know. Ab. teach. Of RC	13.8	1.7	25.9	51.7	6.9	3.19	2.41		
d. C/room practice of (c)	17.2	3.4	20.7	56.9	1.7	3.46	2.60	.9617	.000
e. Know. Ab. stra. in RC task design	22.4	3.4	19.0	51.7	3.4	3.79	2.87		
f. C/room practice of (e)	25.9	5.2	19.0	50.0	0.0	4.10	2.96	.9394	.000
g. Know. Ab. Comp. Tax (CT)	25.9	12.1	36.2	25.9	0.0	4.41	2.79		
h. C/room application of (g)	20.7	8.6	41.4	29.3	0.0	4.03	2.62	.9463	.000

Looking at the responses from the ex-teacher group (see table 6.6.1(iii)), it is discovered that their responses that ranged from 'fairly confident' to 'not very confident' with regards to all cases (10a - 10h) were recorded between 62% and 79.3%. Considering an average of 21.1% rate of 'missing values' noted in each case, it can be assumed that a large proportion of the subjects are not very knowledgeable in the areas mentioned. The rate of 'very confident' responses as indicated in each case was between nil and 6.9%. Parallel to the ex-matric group, none of the ex-teachers claimed to be 'very confident' with regards to CT and only 3.4% claimed to be so in relation to *the construction of RC tasks and activities*. A much higher proportion of the ex-teachers had chosen to be 'unresponsive' as indicated by the rate of the 'missing values' to some of the cases, as opposed to an average of 2.4% 'missing values' as recorded by the ex-matrics.

In order to make a meaningful relationship between 'knowledge' and 'practice' as claimed by the subjects, the knowledge responses were correlated with the practice responses to establish the correlation coefficient between the teachers' claimed 'knowledge' and 'practice of the knowledge'. Question 10 consists of four pairs of inter-related statements. While the first of each pair asks about the subjects' knowledge of certain facts related to the subject; the second elicits the subjects' levels of confidence in applying the 'claimed' knowledge in classroom practices, e.g. 10a. asks about a subject's knowledge about reading skills, 10b elicits information on how confident the subject is in applying the 'knowledge about reading skills' in the classroom. The correlation between

'knowledge' and 'practice' is established by correlating the first with the second in each case; the correlation coefficients are determined by using Spearman Correlation Coefficients.

6.6.1(i) Correlation between 'knowledge and practice' - Ex-matrics

With reference to table 6.6.1, the correlation between knowledge about the reading skills(10a) which was ranked within 'not very confident' and 'fairly confident' levels by the students in relation to the application of the knowledge in classroom practice(10b) was observed to be 'very highly significant' (p< 0.000) as to what has been claimed by the subjects as presented in their responses. So with the claim made by 9.5% to be 'very confident' with the knowledge, only 4.8% claimed this in applying the knowledge in classroom practice. The overall correlation was 'very highly significant' (p< 0.000). While 64.3% were 'fairly confident' in the knowledge, only 59.5% claimed to be so in applying the knowledge in classroom practice. The two variables were very highly correlated at .8090 correlation coefficient (p< .000). Similar trends are observed in further correlation between knowledge and practice as displayed in other pairs. While 2.4% of the subjects claimed to be very confident with regard to the knowledge of teaching RC (10c) was likewise substantiated by nil percentage when asked about the classroom application of the same knowledge. 69.0% claimed to be 'fairly confident' with the knowledge, only to match up with 57.1% of similar responses when asked about applying the knowledge in classroom practice. The level of 'not very confident' displayed by the subjects in conjunction with knowledge and practice further widens from 26.2% to 42.9% respectively. The two variables were very highly correlated at .7220 (p< 0.000). As for the correlation between the 'knowledge about strategies of designing RC tasks/activities(10e)' and the 'practice in the application of the knowledge (10f)', it is observed that the levels of 'fairly confident' claimed by the subjects in relation to knowledge and practice of the case decreases from 42.9% to 28.6% respectively, while the level of 'not very confident' in handling both cases widens from 54.8% to 71.4% respectively. The two variables were nevertheless very highly correlated at .7194 (p< 0 .000). A similar

inclination showing a diminished level of confidence is to a large extent displayed when the 'knowledge about CT(10g)' is correlated with the 'application of the knowledge in classroom practice(10h)'. Though a slight increase of about 2.3% in 'fairly confident' levels is observed from 'knowledge' to 'practice' (i.e. from 14.3% to 16.7%) yet 19.0% of the subjects admitted they were 'not at all confident' in handling both cases, while the levels of 'not very confident' were recorded at 66.7% and 64.3% respectively. Taking both the 'not at all confident' with 'not very confident' groups together, one notices a sizeable percentage of about 81% of the subjects who are within this range of 'not very confident' and 'not confident at all' in handling both CT and the construction of RC tasks and activities. The two variables were very highly correlated at .9681 (p< 0.000). This indicates a clear need of a more systematic and focussed approach in dealing with the construction of RC tasks and activities as well as the application of comprehension taxonomy if it fits in the syllabus of reading courses.

6.6.1(ii) Correlation between 'knowledge and practice' - Ex-Teachers vs. Ex-Matrics

1. The knowledge of reading skills vs. the application of it in classroom practice

With reference to the results displayed by ex-matrics group (table 6.6.1), at a very highly correlation of .8090 (p< 0.000), the level of 'very confident(VC)' in relating 'knowledge' to 'practice' subsided from 9.5% to 4.8%. A similar tendency was likewise observed from the ex-teachers' group which recorded a slip from 6.9% to 3.4% in dealing with 'knowledge of reading skills(10a)' and the 'application of the knowledge in classroom practice (10b)'. Overall, there was a very highly correlation at .9502 (p< 0.000). While the levels of 'fairly confident(FC)' in handling both cases recorded by the ex-matrics' group diminished to 59.5% from 64.3%, the levels experienced by the ex-teachers, on the other hand, was enhanced by about 5.2% (i.e. from 50% to 55.2%). The levels of 'not very confident(NVC)' responses increased from 20.7% to 24.1% as in the case of ex-teachers as compared to an increase from 26.2% to 42.9% experienced by

the ex-matrics demonstrating an increase of 3.4% and 16.7% displayed in both cases respectively.

2. The knowledge about the teaching of RC vs. the application of it in classroom practice

With reference to tables 6.6.1(i) and 6.6.1(iii) (which display the correlation between the **knowledge about the teaching of RC** with **the application of it in classroom practice** as claimed by the Ex-teachers and Ex-matrics respectively, both variables in each pair were very highly correlated at .9617 and .7220 respectively (p< 0 .000 in both cases). Nevertheless, there were interesting differences in responses displayed by both groups. 6.9% of the Ex-teachers claimed to be 'very confident(VC)' with the knowledge dwindled in its level to 1.7% when asked about applying it in classroom practice. The drop of 5.2% in confidence level is more significant than the one exhibited by the ex-matrics' group which shows only a 2.4% drop. As for the 'not very confident(NVC)' level, the gap displayed between knowledge and practice as claimed by the Ex-teachers increases to 5.2%, when the NVC levels recorded between 'knowledge' and 'practice' improves from 25.9% to 20.7%. This marks a significant difference in the trends displayed by the Ex-matrics who experienced a loss of 16.7% of NVC level - a drop from 26.2% to 42.9%. Another improvement in terms of confidence levels experienced by the Ex-teachers as compared to the Ex-matrics was observed in the 'fairly confident (FC)' status of each. The former had indicated an improvement of 5.2% (from 51.7 to 56.9) in contrast with a loss of confidence of 26.3% suffered by the latter. The enhancement of the former over the latter levels could be attributed to the following reason: as teachers who had teaching experience ranging from 3 to more than 10 years, their knowledge and experience in the teaching of RC is unquestionable given the emphasis given to this subject by the Malaysian ESL syllabus (the actual allocation for RC according to the syllabus can be assumed from the Exam Format for SPM starting 1997). The latter group, nevertheless, had no teaching experience prior to their enrollment into the programme.

3. The knowledge about strategies of designing RC tasks and activities vs. practice of applying it in classroom

The 'knowledge' and 'practice' variables from the ex-matric group and the ex-teachers group were noted to be very highly correlated at .7194 and .9394 respectively (p< 0 .000 in both cases).

With reference to tables 6.6.1(i) and 6.6.1(iii), it is observed that both the Ex-Teachers (ET) and the Ex-Matrics (EM) experienced a low level of confidence when applying the 'knowledge' about strategies in designing RC tasks as opposed to the 'practice' of the knowledge in classroom teaching. The ET 'very confident' level dropped from 3.4% to 1.7%, while the ET had not indicated any. When the TT' 'not very confident' levels remained the same at 19.0%(table 6.6.1(iii)), the ET' shrank by 16.6% from 54.8% to 71.4% (table 6.6.1(i)). The 'not at all confident' level of the earlier experienced a drop of 1.8% (from 3.4% to 5.2%) with zero response on the part of the earlier. Generally, the responses from both groups had not been very encouraging as far as strategies of designing RC tasks and activities are concerned, despite earlier claims by the Ex-teachers of having reasonable confidence in the knowledge of teaching RC.

4. The Knowledge about Comprehension Taxonomies vs. the practice in the Application of it in Classroom Practice

Both variables (i.e. 'knowledge' and 'practice') from the ex-matrics' and the ex-teachers' were very highly correlated at .9681 and .9463 respectively (p< 0 .000 in both cases).

The results in tables 6.6.1(iii) and 6.6.1(i) display the correlation between the knowledge about CT and the application of the knowledge in classroom practice as claimed by both ex-teachers and ex-matrics respectively. Although there were no 'very confident' responses, they both showed a slight improvement in their claims with regards to 'fairly confident' level i.e. some members of both groups felt more confident about CT application than about their knowledge of it.. The ex-teachers 'fairly confident' level was enhanced by 3.4% from 25.9% to 29.3% while the ex-matrics improved by 2.4% from 14.3% to 16.7%. The improvement in the

'not very confident' level of the ex-matric by 2.4% sliding from 66.7% to 64.4% in comparison with the waning of the same level of confidence by 5.2% on the part of the ex-teachers from 36.2% to 41.4% was quite unusual considering the teaching experience of the latter. One possible explanation that can be arrived at is that the large number of 'missing values' (between 25.9% to 20.7%) displayed by the latter as compared to none by the former has affected the results.

6.7 Q11 *In your opinion, was your course work (lectures, seminars, essays, private study, etc.) well integrated with your professional needs in relation to the following areas ?*

a.   methods of teaching reading comprehension;
b.   designing of reading comprehension questions;
c.   designing of reading comprehension tasks/activities;
d.   application of reading comprehension skills.

The aims of this question are to find out how much the course in reading instruction (with special reference to RC instruction) that the students had been exposed to was integrated with their professional needs in relation to the above-mentioned areas. The researcher felt this integration could be central to any effort to introduce a more focused approach in handling RC tasks. The other aim is to find out how the two groups, viz. the ex-teachers (ET) and the ex-matrics (EM), differ in their perception with regards to the above question. Responses to the questions were scored using a four-point Likert scale where; (1 = 'very well', 2 = 'fairly well', 3 = 'slightly' and 4 = 'not at all' while 9 = 'missing values'). In fact, no subjects responded with 'not at all'. Their responses were compared using Mann Whitney Wilcoxon test for independent samples which were significant (p < .05). The results are as follows;

Table 6.7.1 Analysis of Responses of Q11: Significant of differences - Ex-teachers vs. ex-matrics

	EX-TEACHERS (n = 58)						EX-MATRICS (n =42)						
Value label	1	2	3	4	m	sd	1	2	3	4	m	sd	sig
a. Methods of teac. RC	13.8	69.0	17.2	0.0	2.03	.56	16.7	66.7	16.7	0.0	2.0	.58	.003
b. Design. RC questions	12.1	55.2	32.8	0.0	2.20	.64	7.1	71.4	21.4	0.0	2.14	.52	.001
c. Design. RC tasks	10.3	70.7	19.0	0.0	2.08	.53	7.1	71.4	21.4	0.0	2.14	.52	.000
d. Appli. of RC	6.9	56.9	36.2	0.0	2.29	.59	4.8	64.3	31.0	0.0	2.26	.54	.001

skills												

<div align="center">Table 6.7.1</div>

11a - *Discussion on methods on the teaching of RC in relation to professional needs*

The mean differences in table 6.7.1 between the ex-teachers and the ex-matrics (at 2.03 and 2.0, respectively) determined by t-tests for paired samples were found to be very significant (p=0.003), indicating that the two groups differed quite significantly in their perception of how much the methods of teaching RC were well integrated with their professional needs. 16.7% of the ex-matrics felt that the course was 'very well' integrated with their professional needs as compared to 13.8% of the ex-teachers who cited this. On the other hand, a majority of the ex-teachers (86.2%) felt that the course was only ranked as 'fairly well' or 'slightly' as far as integration is concerned as compared to 83.4% of the ex-matrics who felt this. The reasons that could account for this would include; i). The teachers are more experienced than the ex-matrics in terms of classroom teaching and handling of reading courses; this could have resulted in their being more focused in their expectations of the courses offered. ii).The stance as indicated by the ex-matrics could be pre-mature considering the fact they had not yet been exposed to teaching experience and were thus free from any influence of background knowledge - a crucial element in passing judgement.

The fact that more than 83.0% of the subjects from both groups citing that the reading course that they had undergone was only ranked as 'fairly well' and 'slightly' is indeed a cause for concern. A new approach is timely, one that calls for a more dynamic and systematic strategies in handling reading tasks. That this should be introduced into the curriculum is echoed by some of the subjects who suggested among other things; '*The idea implied by the CT in line with the teaching of RC esp. looking at how it can be utilized to plan RC tasks and questions should be welcomed and further explored*', '*The CT should have been introduced and covered as part of the reading courses at UPM*'. Some of the subjects might, to a certain extent, have been exposed to the notion about CT

formally or informally based on individual experiences. The results and suggestions as displayed in the analysis have given more impetus for such a study to be carried out and the implications applied into the syllabus of reading courses of UPM TESL programme.

11b - *Discussion on the designing of RC questions in relation to professional needs*

In table 6.7.1, the mean differences between the two groups (ex-teachers and ex-matrics) were recorded at 2.2 and 2.1 respectively. The Mann Whitney Wilcoxon Test for independent samples revealed that these differences were highly significant (p=0.001). The subjects' perceptions of how RC questions should be designed in line with their professional needs mainly fell within the range of 'fairly well' and 'slightly' as recorded by 88.0% of the ex-teachers and 92.8% of the ex-matrics. Less than 13.0% from either group had suggested 'very well' in considering the issue.

11c - *Discussion on the designing RC tasks and activities*

As displayed in table 6.7.1 the mean differences between the ex-teachers and the ex-matrics was very highly significant (p=0.000) recorded at 2.08 and 2.14 respectively indicating a very highly significant result. With regards to the 'designing of RC tasks and activities' and how well this is integrated with the subjects' professional needs, 89.7% of the ex-teachers and 92.8% of the ex-matrics placed the course within the range 'fairly well' and 'slightly' leaving only 10.3% of the earlier and 7.1% of the latter indicating it as 'very well' integrated. Considering more than 89.0% of the subjects from both groups were not very optimistic with their perceptions of the course in relation to their professional needs, it is desirable that a more practical and dynamic approach is introduced. The present approach is one such alternative.

11d - *Application of RC skills in classroom practice - discussion*

As displayed in table 6.7.1 the mean differences between the ex-teachers and the ex-matrics was highly significant (p=.001) observed at 2.29 and 2.26 indicating a highly reliable result. As noted from the table 6.7.1, the ex-teachers and the ex-matrics felt that the exposure related to the application of RC skills, as far as their professional needs were concerned, fell highly within the region of 'fairly' and 'slightly well' which were observed at 93.1% and 95.3% respectively. Only 6.9% of the former and 4.8% of the latter had indicated that the input was 'very well' related to their professional needs. This is another cause for concern which demands further strategic emphasis in handling the subject if improvement on the subjects' perception over their professional needs is desired.

6.8 Q12 - *How confident do you feel about teaching of the following aspects of reading covered in some teacher training reading courses (if it is covered in your course);*

a.   assessing and grading questions according to the different levels of comprehension or thoughts;
b.   Selecting, sequencing or combining comprehension activities/tasks;
c.   directing questions to RC tasks/activities;
d.   relating questions to instructional objectives in line with pupil needs;
e.   assessing RC tasks/activities;
f.   knowing how to apply theory into practice.

The aim of question 12 is to determine how confident the subjects were concerning the aspects of reading instruction normally regarded as important aspects of reading skills which are central to the objectives of the current research. It is also put forward with the intention of finding out the levels of differences in responses as perceived by the two groups of subjects (ex-teachers and ex-matrics). The responses to each skill were scored using a four-point Likert scale (using 1 as 'very confident', 2 as 'fairly confident', 3 as 'not very confident', 4 as 'not at all confident' and 9 as 'missing values'). The means of each variable from both groups of subjects were compared using t-test for paired samples which was significant (p<0.05). The results are as follows;

Table 6.8.1 Q12: Analysis of Significant of Differences in Confident levels On Teaching Some Aspects of Reading (ex-teachers vs. ex-matrics)

	EX-TEACHERS n = 58						EX-MATRICS n = 42						
Value label	1	2	3	4	m	sd	1	2	3	4	m	sd	sig
a. Ass./grad. RC Q	9.8	46.3	31.7	12.2	2.46	0.84	11.9	42.9	28.6	16.7	2.50	0.89	.000

b. Sel/seq. RC T	11.1	70.4	18.5	0.0	2.00	0.35	4.8	78.6	16.7	0.0	2.11	0.45	.007
c. Dir. RC Q to T	15.1	73.6	11.3	0.0	1.90	0.39	9.5	61.9	28.6	0.0	2.19	0.59	.000
d. Rel. Q to Ins. Obj	9.1	54.5	31.8	4.5	2.23	0.61	0.0	47.6	52.4	0.0	2.52	0.50	.000
e. Ass. RC Tasks	7.7	57.7	28.8	5.8	2.09	0.53	0.0	40.5	59.5	0.0	2.59	0.49	.000
f. Know. to app. th. into practice	22.2	42.6	25.9	9.3	2.20	0.67	4.8	28.6	59.5	7.1	2.69	0.68	.000
Average	12.5	57.5	24.7	5.3	2.15		5.2	50.0	40.8	4.0	2.43		

With reference to table 6.8.1, the subjects from both groups perceived themselves more within the range of 'fairly confident' and 'not fairly confident' in all the aspects mentioned in Q12, as indicated by the average means of both groups; 2.15 for the ex-teachers and 2.43 for the ex-matrics, recorded at a very high significant levels (both at p<.000) However, the ex-teachers were generally observed to be in a better position in handling the issues spelled out under the question. As the aspects mentioned in Q12 are strongly related to the theme of the study, the subjects' perception of each would indicate their level of confidence in handling the issues put forward. This, to a certain extent, would reflect the nature, kinds and extent of knowledge and experience they have so far acquired and been exposed to.

The aspects related to 'selecting, sequencing or combining RC activities/tasks' and 'directing RC questions to tasks' are observed to be the most 'troubled' spots for both groups. More than 80% from each group ranked themselves within 'fairly and not very confident' level with regard to the subjects (refer:12b and c, value labels 2 and 3 in table 6.8.1) . As the overall 'confidence level' of the subjects were heavily concentrated within the range of 'fairly' and 'not very confident' levels in relation to all the aspects which are central and relevant to the subjects' understanding and manner in handling RC questions and tasks, it can be assumed that further exposure and input on the subjects concerned are required to improve on the situation. This calls for further investigation on how the subject-matter should be handled systematically.

6.9 Conclusion

From the subjects' responses to the questions in the questionnaire in relation to their perception on issues governing RCQs and RCTs in comparison

with their actual formulation of RCQs and RCTs during the pretest sessions in all the experiments carried out (refer to Chapter 7), it can be concluded that:

i. Generally, the subjects' knowledge of the application of question taxonomies in formulating RCQs and RCTs was minimal. Only 8.2% of them have cited the use of Bloom taxonomy is carrying out such a task (table 6.1.1). The majority of the RC teaching models cited by them were largely suggestive of producing convergent kinds of RCQs and RCTs as shown in table 6.1.1. As a result, the RCQs and RCTs, actually formulated by them during the pretest sessions were mainly *literal* and convergent in nature as justified by the results shown in table 7.2.1(i) which were discussed in details (refer to 7.2 results of main study).

ii. The subjects' low levels of confidence in handling crucial issues related to the RC instruction, for instance, formulation of RCQs and RCTs using proper models, understanding of comprehension taxonomies, and application of the knowledge they had gathered from the reading courses that they had undergone into classroom practice, as indicated in their responses to Questions 6 to 12 of the questionnaire, were well justified by their construction of RCQs and RCTs during the pretest. These generally belonged to the low level convergent kinds (refer to analysis of results in Chapter 7). A more critical approach in the teaching of reading is required to boost the confidence and performance of the students.

iii. The subjects' awareness about the relationship between RCQs and RCTs was minimal. This is established in the correlation between the RCQs suggested by them with those of RCTs. There was no indication that the subjects were especially aware of the importance of the relationship between RCQs and RCTs, among the two main ingredients thought to be necessary in developing successful RC lessons. This was further justified when the RCQs formulated by them during the pretest session were not significantly related to the RCTs (refer to table 7.2.2 in Chapter 7).

A limiting feature of some of these results is that some of the numbers are relatively small when cases are missing. Generally, however, many of the results are statistically significant and can certainly be taken as indicative.

Having considered all the views and responses put forward by the subjects in responding to the questionnaires, it is timely to suggest that there is a need to review the Reading Courses of the TESL programme of UPM looking at the low confidence level the teachers hold in relation to their ability to apply the knowledge in classroom situation (refer to results in tables 6.6.1(i) and 6.6.1(iii)). Further justification for such a need are seen when looking at the subjects' actual performance in RCQ and RCT construction to be presented in Chapter 7.

CHAPTER SEVEN

RESEARCH FINDINGS:

DISCUSSION OF RESULTS OF EXPERIMENTS

7.0 Introduction

This chapter presents and discusses the results of all the experiments carried out in this research study. Statistical analysis of data was conducted by means of SPSS, version 6.0 for Windows. The Wilcoxon test was used in determining the significance of differences of related samples (e.g. between the pretest and posttest results) while the Mann-Whitney test was used to determine the significance of unrelated/independent samples (e.g. Ex-teachers vs. Ex-matrics). The Spearman Correlation Coefficient was used to determine any significant correlation and relationship between relevant variables in related stages of the experiments e.g. the correlation between RCQs and RCTs. The Mann-Whitney and Wilcoxon tests (Siegal, 1956; Borg and Gall, 1971) were also used to determine any significant differences between means scores of the *levels of thought processes* (LOTP) of RC Questions (RCQ) and RC Tasks (RCT) conducted during the pretests and posttests in all phases of the research. Where necessary, frequency and descriptive analyses were also carried out.

In this chapter, all the aims and objectives outlined in this research will be central to the presentation and discussion. Major emphases include: the testing of the null-hypotheses, levels of comprehension or thought processes (LOTPs) of RCQs and RCTs at pre and posttests, the types and LOTPs of RCQs and RCTs in prescribed text books, any significant correlations between different variables (dependent and independent) and interpretations that can be derived from relevant correlations, such as the relationship between questions and tasks. The correlation between teachers' questions and tasks as opposed to the questions/tasks used in the prescribed texts will be examined. Implications and suggestions based on the results and interpretations are also discussed.

7.1 Testing of Hypotheses

It was stipulated in the **Research Hypothesis** that;

i) There will be a difference in the means of the LOTPs between the RC questions designed during the pretests at all phases and those designed during the posttests at all phases of the research. It is predicted that the posttest LOTPs will be higher than the pretest LOTPs;

ii) There will be a difference in means of the LOTPs between the RC tasks formulated during the pretests at all phases and those designed during the posttests at all phases of the research. It is expected that the posttest LOTPs will be higher than the pretest LOTPs;

iii) The teachers' application of the knowledge of a taxonomy of questions (e.g. the Cogaff taxonomy) will be positively correlated with their construction of higher-order questions and tasks; and

iv) The RCQs constructed by means of the Cogaff taxonomy will be positively correlated with the RCTs.

The Wilcoxon Matched-Pairs Signed-Ranks Test for *related* samples was used to determine the significant differences between the means levels of LOTPs of pretests and posttests carried out on all variables required in the hypothesis testing. The Mann-Whitney test was likewise used to determine the significant differences of *independent* samples (e.g. EM vs. ET). The Spearman Correlation Coefficients were used to determine the correlation between the RCQs and RCTs to see if there was any relationship between the two main variables.

7.1.1 Results of hypotheses testing

From the results displayed in table 7.2.1(i), it is clear that:

i.) There are very highly significant differences in the means of LOTP of RC questions (RCQ) designed in the pretests and those in the posttests within the three experimental groups namely; the *Ex-matrics* (EM), the *Ex-teachers* (ET) and the *Trained teachers* (TT). The level of significance observed for each was $p < 0.000$. It should be recalled that LOTP range from 1 (low) to 6 or 7(high). The means rose dramatically from 1.79 to 3.93 ($z=-12.57$) for the

EM; from 2.03 to 4.02 (z=-13.09) for the ET and from 1.88 to 4.52 (z=-5.08) for the TT.

ii.) As indicated in table 7.2.1(i), the RC tasks (RCTs) constructed demonstrated a similar striking upsurge in the LOTP as indicated by the mean differences between pretests and posttests. The observed level of significance was p< 0.000 for each group; the EM's means was enhanced to 3.93 from 1.79 (z=-12.57); the ET's to 4.02 from 2.03 (z=-13.09) and the TT's to 4.52 from 1.88 (z=-5.08).

iii.) Based on the results shown in tables 7.2.1(i), it is also demonstrated that the teachers' knowledge of the Cogaff taxonomy is significantly correlated with their construction of higher-order thinking RCQs and RCTs. As can be seen from the results, the means of RCQs constructed by the three groups, namely the EM, ET, and TT have instrumentally risen to 3.93, 4.02, and 4.52 respectively during the posttests from 1.79, 2.03, and 1.88 respectively initially observed during the pretests. While the means of the RCTs observed at 1.72 (EM), 1.94(ET), 1.83(TT) during the pretest have improved to 4.05, 3.97, and 4.29 during the posttest respectively.

iv.) Other results have also established that the RCQs designed by the subjects during the posttest by means of the Cogaff taxonomy are highly correlated with the RCTs formulated during the posttest. Table 7.2.5 establishes that the RCQs produced by all the experimental groups (the EM, ET,TT) are highly correlated with RCTs recorded at significant levels of p< 0.000(EM), p=0.055(ET), and p<0.000(TT). This is opposed to the results of the pretests between the RCQs and RCTs whose significance levels are much less at p= 0.898 (EM); p=0.215 (ET); p=0.324 (UPM Control Gr); p=0.105 (TT); and p=0.442 (TT Control Gr), which show no significant correlation between the RCQs and RCTs (p< 0.000).

Drawing from the above results, all the null-hypotheses as stated in Chapter One are found to be null and void and are therefore *rejected*. It can be concluded that there is some evidence here to support the alternative hypotheses.

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7.2 RESULTS OF MAIN STUDY

The mean scores displayed in table 7.2.1 are based on the means of the LOTP of RCQs and RCTs produced by the subjects during the field study. As already indicated in chapters 4 and 5, the LOTP of RCQs and RCTs is ranged from 1(low) to 6 (or 7) (high).

7.2.1(i) The Experimental Groups: Significance of mean differences

	RC QUESTION			RC TASK		
	Ex-Matrics	Ex-Teachers	Trained Trs.	Ex-Matrics	Ex-Teachers	Trained Trs.
M (sd) of Pretest	1.79 (0.95)	2.03 (0.94)	1.88 (0.55)	1.72 (0.6)	1.94 (1.18)	1.83 (0.98)
m (sd)of Posttest	3.93 (1.84)	4.02 (1.72)	4.52 (1.84)	4.05 (1.87)	3.97 (1.73)	4.29 (1.47)
z-value	-12.57	-13.09	-5.08	-13.35	-12.38	-5.26
d.f.	303	303	42	303	303	42
2-Tailed P	p<.000	p<.000	p<.000	p<.000	p<.000	p<.000
Significance level	***	***	***	***	***	***

* significant   ** highly significant   *** very highly significant

Table 7.2.1(i)
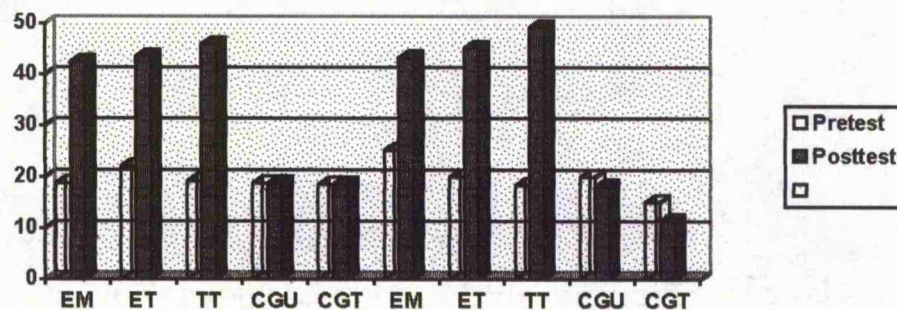
Figure 7.2.1(i)   Significance of mean differences of RCQ (1-5) and RCT (6-10)
Keys: 1. EM (Ex-matrics) 2. ET (Ex-teachers) 3. TT (Trained teachers) 4 . CGU (Control group UPM) 5. CGT (Control Group TT)

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Table 7.2.1(ii) Control Groups: Significance of mean differences

	RC QUESTION		RC TASK	
	UPM	TT	UPM	TT
m (sd) of phase 1(*pre*)	1.87(1.04)	1.85(.36)	1.99(1.11)	1.50(.85)
m (sd) of phase 2 (*post*)	1.89(1.04)	1.85(.36)	1.82(0.90)	1.14(.36)
z-value	-.19	.00	-.97	-1.46
d.f.	69	13	69	13
2-Tailed P	.85	1.00	.33	.14
Significance level	p>.05	p>.05	p>.05	p>.05

* significant   **highly significant   *** very highly significant

Tables 7.2.1(i) and (ii) display the significance of mean differences of the main variables for the EM, ET, TT, UPM (Control Group) and TT (Control Group) used in the experiments. As already mentioned, there was a

very highly significant difference between the mean of each variable in the pretests and the posttests between the experimental groups (EM, ET, TT). On the other hand, the means of the control groups (UPM and TT) did not demonstrate any significant differences between the two phases. This is clearly manifested in the graph (figure 7.2.1(i)). The results are discussed below.

Table: 7.2.2(a) Percentage of RCQs based on the Cogaff taxonomy

LOTPs	PRETEST					POSTTEST				
	EM	ET	TT	CGU	CGT	EM	ET	TT	CGU	CGT
1.0 Knowledge	40.6	24.8	19.0	34.3	14.3	13.9	8.9	4.8	32.9	14.3
2.0 Comprehension	50.5	62.4	76.2	58.6	85.7	15.8	16.8	16.7	60.0	85.7
Literal	91.1	87.2	95.2	92.9	100	29.7	25.7	21.5	92.9	100
3.0 Application	1.0	11.9	2.4	1.4	-	4.0	6.9	4.8	1.4	-
4.0 Analysis	6.9	-	2.4	5.7	-	25.7	25.7	21.4	5.7	-
5.0 Synthesis	-	-	-	-	-	18.8	20.8	16.7	-	-
6.0 Evaluative	-	1.0	-	-	-	13.9	13.9	19.0	-	-
7.0 Affective	1.0	-	-	-	-	7.9	6.9	16.7	-	-
Inference	8.9	12.8	4.8	7.1	0.0	70.3	74.3	78.5	7.1	0.0

Key:1. LOTP (Level of Thought Processes) 2. EM (Ex- Matrics) 3. ET (Ex-teachers) 4. TT (Trained teachers)
5. CGU (Control Group UPM) 6. CGT (Control Group Trained Teachers)

Table: 7.2.2(b) Percentage of RCQs: Literal vs Inference

LOTP	PRETEST						POSTTEST					
	EM	ET	TT	m	CGU	CGT	EM	ET	TT	m	CGU	CGT
LITERAL	91.1	87.2	95.2	91.2	92.9	100	29.7	25.7	21.5	25.6	92.9	100
INFERENCE	8.9	12.8	4.8	8.9	7.1	0	70.3	74.3	78.5	74.4	7.1	0

Key:1. LOTP (Level of Thought Processes) 2. EM (Ex- Matrics) 3. ET (Ex-teachers) 4. TT (Trained teachers)
5. CGU (Control Group UPM) 6. CGT (Control Group Trained Teachers)
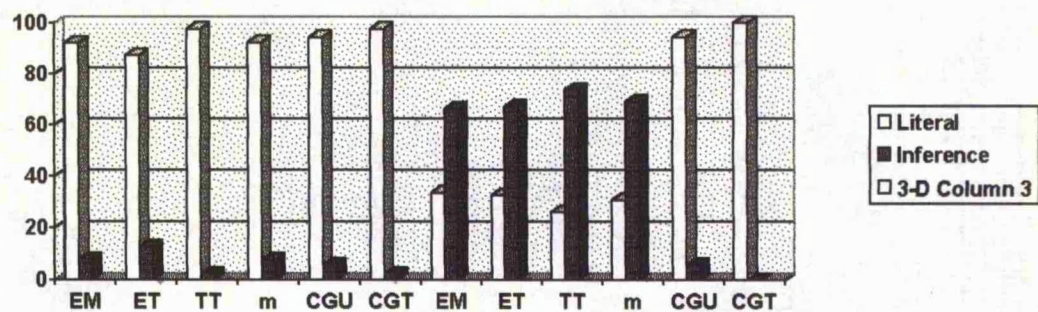
Figure 7.2.2b Percentage of RCQ: Pretest (1-6) vs. Posttest (7-12)
Key: 1. EM (Ex-matrics) 2. ET (Ex-teachers) 3. TT (Trained teachers) 4 . CGU (Control group UPM) 5. CGT (Control Group TT) 6. m (mean)

Considering the performance of the three **experimental groups**, namely; *the Ex-matrics* (EM), *Ex-teachers* (ET) and *Trained teachers* (TT) and the **control groups** - consisting of the *UPM control group* (CGU) and *TT control group* (CGT), in all the treatments carried out during all phases of the research, as displayed in table 8.2.2(a) and (b): the following interpretations are drawn.

7.2.2(i)   Pretest vs. posttest: RC Questions

At the **pretest** (pre-intervention stage), the RCQs designed by the EM, ET and TT: with the mean score of each determined at 1.79, 2.03 and 1.88 respectively (table 7.2.1(i)); nearly all seemed to fall within the range of 'literal' and 'comprehension' types of the Cogaff Taxonomy which were *non-inferential* or *literal* in nature. Precisely, the low-order, *literal* RCQs designed by the three experimental groups; EM, ET and TT, were observed at 91.1%, 87.2% and 95.2% respectively (refer to table 7.2.2(a and b)). Overall, a mean percentage of 91.2% of the RCQs constructed by the three groups were of *literal* LOTP at the **pretest** stage.

The control groups for UPM (CGU) and trained-teachers (CGT) produced 92.9% and 100% literal RCQs respectively (table 7.2.2(a and b)). The mean scores for phase 1 stage (pretest) for these two groups were determined at 1.87 and 1.85 respectively (table 7.2.1(ii)). Significantly, both these control groups remained relatively unchanged in their manner of constructing RCQs when, at phase 2 (the posttest stage), the RCQs produced by the two control groups were still mainly or entirely *literal* at 92.9% and 100% respectively with the respective mean scores observed at 1.82 and 1.14 (table 7.2.1(ii)).

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Turning to the experimental groups' higher-order questions, the RCQs with *inferential* LOTP constructed during the pretest were indeed very low. With an average occurrence of only 8.9% (table 7.2.2(b)) for the three experimental groups of subjects, the RCQ designed at the pre-intervention stage (pretest) were highly *literal* or low-order in nature.

In the posttest result, as displayed in table 7.2.2(b)), there was a dramatic change in the pattern of RCQ construction of the three experimental groups, namely EM (Ex-matrics), ET (Ex-teachers) and TT (Trained-teachers). From the mean pre-test scores of 1.79, 2.03 and 1.88 for EM, ET, and TT respectively, the means had a dramatic upsurge to 3.93, 4.02 and 4.52 respectively in the posttest. With z-values recorded at -12.57, -13.09 and -5.08 respectively, the significant level for each was observed at $p < 0.000$, signifying a 'very significant level' of the results.

Descriptively, the average mean of only 8.9% of RCQs with *inferential* LOTPs observed during the pretest had risen to 74.4%, indicating an upsurge of more than 60% in the LOTPs. In complete contrast with the control groups (CGU and CGT), which remained highly '*literal*', the EM's, ET's and TT's had tremendously enhanced their *inferential* LOTPs to 70.3%, 74.3% and 78.5% respectively in the pattern and style of RCQ construction. Precisely, with reference to *inferential* LOTPs, the EM had improved from only 8.9% during the pretest to 70.3% in the posttest. A similar upsurge was likewise observed in the other two groups (ET and TT) which both improved from 12.8% to 74.3% and 4.8% to 78.5% respectively. The trained teachers (TT), with an improvement of 73.7% in the pattern of RCQ construction, were seen to be the most receptive as far as the treatment was concerned. The change in RCQ construction patterns experienced by the EM and ET (UPM group) were 61.4% and 61.5% respectively. With z-values reading at -12.57, -13.09 and -5.08 for the EM, ET and TT respectively, the level of significance of the results was very high at $p < 0.000$.

Table 7.2.3(a): Percentage of RCTs based on the Cogaff taxonomy

LOTP	PRETEST					POSTTEST				
	EM	ET	TT	CGU	CGT	EM	ET	TT	CGU	CGT
1.0 Knowledge	34.6	57.4	57.1	54.3	71.4	15.8	15.8	9.5	50.0	85.7
2.0 Comprehension	59.4	4.0	2.4	42.9	7.1	3.0	2.0	2.4	50.0	14.3
Literal	94.0	61.4	59.5	97.2	78.5	18.8	17.8	11.9	100	100

3.0 Application	5.0	28.7	40.5	1.4	21.5	8.9	7.9	2.4	–	–
4.0 Analysis	1.0	7.9	–	1.4	–	46.5	47.5	42.9	–	–
5.0 Synthesis	–	1.0	–	–	–	2.0	8.9	28.6	–	–
6.0 Evaluative	–	1.0	–	–	–	5.9	5.9	7.1	–	–
7.0 Affective	–	–	–	–	–	17.9	11.9	7.1	–	–
Inference	6.0	38.6	40.5	2.8	21.5	81.2	82.2	88.1	0	0

Table 7.2.3(b): Percentage of RCTs: Literal vs Inference

	PRETEST						POSTTEST					
LOTP	EM	ET	TT	m	CGU	CGT	EM	ET	TT	m	CGU	CGT
LITERAL	94.0	61.4	59.5	71.6	97.2	78.5	18.8	17.8	11.9	16.2	100	100
INFERENCE	6.0	38.6	40.5	28.4	2.8	21.5	81.2	82.2	88.1	83.8	0	0
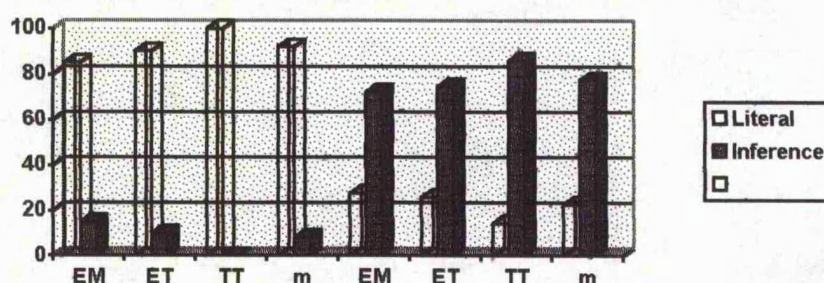
Keys: 1. EM (Ex-matrics) 2. ET (Ex-teachers) 3. TT (Trained teachers) 4 . CGU (Control group UPM) 5. CGT (Control Group TT) 5. m (mean)

Figure 7.2.3 (b) RCT: Pretest (1-4) vs. Posttest (5-8)

The ET group, being more experienced in terms of 'classroom teaching' was expected to be more receptive than the EM counterparts who were less experienced. It is not within the scope of this study to discuss in details the reasons and factors behind the degree of differences in the manner in which each experimental group had responded to the treatment carried out. Further study may be necessary in order to verify that. The main concern of this study is to find out whether or not the treatment carried out produced significant changes in the pattern of RCQ construction.

The **Cogaff Taxonomy** (as a modification of Bloom et al., (1956) and Krathwohl et al. (1964), was systematically utilised in the generation of RCQs and RCTs respectively. It had a substantial impact on the subjects' knowledge and style of RCQ and RCT constructions. The RCT construction patterns are discussed in the following paragraphs.

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Tables and figure 7.2.3(a) and (b) display the results of the experiments carried out in both pretest and posttest stages of RCT construction. In table 7.2.1(i), the means of RCT produced by EM, ET and TT are observed at 1.72, 1.94 and 1.83 respectively during the pretest. The mean scores were dramatically improved to 4.05, 3.97 and 4.29 respectively in the posttest, demonstrating a tremendous upsurge; in the EM's performance from 6.0% of *inferential* production of RCT (where 94.0% were *literal*) in the pretest to 81.2% *inferential* (where 18.8% were *literal*) during the posttest for the EM (table 8.2.3(b)). Likewise, ET's had improved from 38.6% in *inferential* pretest RCT (61.4% *literal*) to 82.2% inferential posttest scores, where only 17.8% were *literal*. Similarly, TT's had experienced a similar dramatic change in the RCT production during both stages. From 59.5% *literal* RCT produced during the pretest, they had improved to 88.1% *inferential* RCT during the posttest. Too high a production of inferential RCQ or RCT is not desirable, though, for it can be strongly suggested that there should be a reasonable proportions of both *literal* and *inferential* RCT in any case of RCT design. However, these results strongly indicate that teachers' insight into RCT production could be enhanced tremendously through their understanding and manipulation of a particular strategy or methodology, in this case, the utilisation of the Cogaff Taxonomy (CT). This does not, of course, in itself mean that inferential questions alone, or mainly, will always be produced by such teachers thereafter, but it does demonstrate that teachers can, in a relatively short workshop, learn to produce higher-order questions and tasks.

The Wilcoxon Matched-Pairs Signed-Ranks was run to determine the significance levels between the pretest and posttest results. With the z-values for EM, ET and TT observed at -13.35, -12.38, and -5.26 respectively for the three groups, the results comparing differences between the pretests and the posttests for all the three groups were 'very highly significant' at $p < 0.000$ (table 7.2.1(i)).

Table 7.2.4(i) Pretest: mean of means of RCQ vs. RCT

	EM	ET	TT	CGU	CGT	m	LOTP
RCQ	1.79	2.03	1.88	1.87	1.85	1.88	*Literal*
RCT	1.72	1.94	1.83	1.99	1.50	1.80	*Literal*

7.2.4(ii) Posttest: mean of means of RCQ vs. RCT

	EM	ET	TT	m	LOTP
RCQ	3.93	4.02	4.52	4.16	Inference
RCT	4.05	3.97	4.29	4.10	Inference

Table 7.2.4(ii)

Keys: 1. EM (Ex-matrics) 2. ET (Ex-teachers) 3. TT (Trained teachers) 4. CGU (Control group UPM) 5. CGT (Control Group TT)   6. LOTP (Levels of thought Processes)

Note: The 'CGU' stands for *Control-Group (UPM)* and 'CGT' for Control-Group (*Trained-teachers*) were not accounted in the calculation and thus excluded from table 8.2.4(ii) (Post-test for means of means of RCQ vs. RCT) for there were no significant differences in the posttest results from the pretest as shown.

Based on the results displayed in tables 7.2.4(i) and (ii), it is observed that all the experimental groups (EM, ET, and TT) have undergone an instrumental change in their RCT construction patterns during the posttest. Overall, the trained teachers (TT) were more receptive to the treatment conducted than the other two groups (EM and ET). The TT have yielded a higher degree of higher-order RCQs and RCTs (at 4.52 and 4.29 means score respectively) as compared to the other two groups.

7.2.5 Correlation between RCQs and RCTs

This section examines the subjects' awareness of the relationship between RCQs and RCTs while formulating the tasks which provide the means to investigate the objective 3 of the present study. The objective aims at determining whether the subjects' RCQs are correlated with the RCTs that they have designed. This was conducted by examining the correlation between the Pretest RCQs and Pretest RCTs as opposed to the Posttest RCQs against Posttest RCTs. *The Spearman Correlation Coefficients* was used to determine the levels of significance of the relationship between RCQs and RCTs (where $p < .05$). The results are shown in table 7.2.5

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Table 7.2.5 Correlation between RCQs and RCTs

PRETEST RCQs vs. RCTs			POSTTEST RCQs vs. RCTs		
Variables	Sig. Lev	2-tailed p	Variables	Sig. Lev	2-tailed p
Var 13 vs 15	.898	>.05	Var 14 vs 16	.000	***
Var 17 vs 19	.215	>.05	Var 18 vs 20	.055	*
Var 21 vs 23	.324	>.05	Var 26 vs 28	.000	***
Var 25 vs 27	.105	>.05			
Var 29 vs 31	.442	>.05			

<center>* significant   **highly significant   *** very highly significant</center>

Var 13 - Pretest RCQ (Ex-Matric)   Var 14 - Posttest RCQ (Ex-Matric)
Var 15 - Pretest RCT (Ex-Matric)   Var 16 - Posttest RCT (Ex-Matric)
Var 17 - Pretest RCQ (Ex-Trs)   Var 18 - Posttest RCQ (Ex-Trs)
Var 19 - Pretest RCT (Ex-Trs)   Var 20 - Posttest RCT (Ex-Trs)
Var 21 - Pretest RCQ (UPM Cont Gr)   Var 26 - Posttest RCQ (Trained Trs)
Var 23 - Pretest RCT (UPM Cont Gr)   Var 28 - Posttest RCT (Trained Trs)
Var 25 - Pretest RCQ (Trained Trs)
Var 27 - Pretest RCT (Trained Trs)
Var 29 - Pretest RCQ (Trained Trs Cont Gr)
Var 31 - Pretest RCT (Trained Trs Cont Gr)

7.3 Analysis of Results: Correlation Between RCQs and RCTs

Looking at the results of the pretest shown in table 7.2.5, it is observed that all the RCQs design by the subjects represented by the three different groups, namely, the Ex-Matrics, Ex-Teachers and Trained Teachers, were not significantly related to the RCTs that they had designed. The significance levels for the three experimental groups were observed at 0.898, 0.215, and 0.105 respectively (i.e. $p>.05$). Considering the results obtained from the control groups, from the UPM and the Trained Teachers (Variables 21, 23, 29 and 31) whose RCQs and RCTs were observed as not significantly correlated as indicated by their respective significance levels at 0.324, 0.442., ($p>.05$); it can be concluded that all the subjects, while constructing the RCQs during the pretests, did not seem to consider or be aware of the correlation between the RCQs and the RCTs.

On the other hand, there was an instrumental change in the manner of how the RCQs and RCTs were formulated during the posttest. Table 7.2.5 demonstrates how the RCQs designed by the Ex-Matrics, Ex-Teachers and Trained Teachers were very significantly correlated with their construction of RCTs at respectively, $p<0.000$, $p=0.055$ and $p<0.000$, ($p<.05$). This strongly indicates that the subjects, with the use of the Cogaff taxonomy, were able to

formulate high level RCQs which can be used as the basis of constructing equally high level RCTs.

7.4 Analysis of RCQs and RCTs using the Cogaff and Bloom Taxonomies

This section presents the analyses of RCQs and RCTs using both the Cogaff and the Bloom taxonomies. The use of the Bloom taxonomy in the analysis of the RCQs and RCTs (where the *affective* domain is excluded) expunges any notion that the *affective* domain used in the Cogaff taxonomy could have a significant influence on the levels of higher-order (inference) RCQs and RCTs recorded in all the experiments carried out (see section 7.2.3(a) and (b)). The assessment carried out based on the Bloom taxonomy will determine the nature of the RCQs and RCTs designed by the subjects without the *affective* domain. The results are displayed in Tables 7.4(i) for RCQs and 7.4(ii) for RCTs.

From tables 7.4(i) and (ii), it is noted that the RCQs and RCTs constructed by all the three groups (i.e. EM, ET, TT) during the pretests are predominantly presented within the low-order types. As far as RCQs are concerned, 92.0% constructed by the EM, 87.2% by the ET and 95.2% by the TT, during the pretest, are all *literal* in types. As for RCTs, during the pretest, 94.0%, 61.4%, and 59.5% respectively belonging to the three groups are of the *literal* kinds. Similar trends (i.e. low-order kinds) were observed in the manner of how RCQs and RCTs constructed during the pretest were analysed by means of the Cogaff taxonomy (as shown in Table 7.2.2(a)).

7.4(i) Percentage of RCQs Based on the Bloom Taxonomy

LOT P	Label	PRETEST					POSTTEST				
		EM	ET	TT	CGU	CGT	EM	ET	TT	CGU	CGT
1	Know	41.0	24.8	19.0	34.3	14.3	15.1	9.6	5.7	32.9	14.3
2	Comp	51.0	62.4	76.2	58.6	85.7	17.2	18.1	20.0	60.0	85.7
3	App	1.0	–	2.4	1.4	–	4.3	7.4	5.7	1.4	–
4	Ana	7.0	11.8	2.4	5.7	–	28.0	27.7	25.7	5.7	–
5	Syn	–	–	–	–	–	20.4	22.3	20.0	–	–
6	Eva	–	1.0	–	–	–	15.1	14.9	22.9˙	–	–
	Total	100	100	100	100	100	100	100	100	100	100

7.4(ii) Percentage of RCTs Based on the Bloom Taxonomy

LOT P	Label	PRETEST					POSTTEST				
		EM	ET	TT	CGU	CGT	EM	ET	TT	CGU	CGT
1	Know	34.6	57.4	57.1	54.3	71.4	19.3	18.0	10.3	50.0	85.7
2	Comp	59.4	4.0	2.4	42.9	7.1	3.6	2.2	2.6	50.0	14.3
3	App	5.0	28.7	40.5	1.4	21.4	10.8	9.0	2.6		–
4	Ana	1.0	7.9	–	1.4	–	56.6	53.9	46.2	–	–
5	Syn	–	1.0	–	–	–	2.4	10.1	30.8	–	–
6	Eva	–	1.0	–	–	–	7.2	6.7	7.7	–	–
	Total	100	100	100	100	100	100	100	100	100	100

During the posttest, both RCQs and RCTs of the experimental groups have experienced an upsurge towards the higher levels of thought processes. The low-order RCQs and RCTs constructed during the pretest were dramatically upgraded to the higher-order ones. As seen in Table 7.4(i), the RCQs designed by the EM had improved to 67.8% *inference*, the ET to 72.3% and TT to 74.3%. While Table 7.4(ii) demonstrates how the RCTs were transformed to 76.9% *inference* by the EM, 79.7% by the ET, and 87.3% by the TT.

It is observed that the Bloom taxonomy, just like the Cogaff taxonomy yielded a tremendous effect on the subjects' manner in designing the RC questions and tasks. The manner of how the RCQs and RCTs were constructed by the subjects demonstrates that the use of the Cogaff taxonomy has indeed enriched the teachers' knowledge and style of RC question and task construction.

7.5 Concluding Remarks

From tables 7.2.4(i) and (ii) which show the mean of means for RCQ and RCT construction during the pretests and the posttests, it can be concluded that;

    i) at the pretest stage, the average means of RCQ and RCT production were 1.88 and 1.80 respectively; a huge proportion of the RCQs/RCTs of both experimental and control groups were literal in nature.

    ii) at the posttest stage, the average means of RCQ and RCT productions of the experimental groups surged up to 4.16 and 4.10 respectively, indicating a reasonable proportion of inferential question/task production (table 7.2.4(ii)),

    iii) the teachers' application of the knowledge of the Cogaff Taxonomy is significantly correlated with their construction of higher-order questions and tasks. The RCQs and RCTs formulated by the three

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groups, namely, the EM, ET and TT, during the posttest (i.e. when the Cogaff Taxonomy was applied) are highly inferential. The average mean of 1.88 in the RCQ construction by all the three experimental groups during the pretest has escalated to 4.16 during the posttest establishing a dramatic change in the teachers' behaviour in RCQ construction.

iv) The RCQs constructed by means of the Cogaff taxonomy are significantly correlated with the formulated RCTs. It is observed that all the RCQs formulated by the three experimental groups, namely the EM, ET, and TT, during the posttest are significantly correlated with the RCTs (p<0.000,p= 0.055, and p< 0.000, respectively).

v) During the pretests (phase 1), it was observed that the two control groups' (UPM and Trained-teachers) means of RCQ production were at 1.87 (for UPM) and 1.85 (for TT), and RCT production at 1.99 and 1.50 respectively. During the posttests (phase 2), their performance in RCQ and RCT production was observed at 1.89 (for UPM) and 1.85 (for Trained-teachers) and in RCT construction at 1.82 and 1.14 respectively (table 7.2.1(ii)). Judging by the fact that these were not significant changes in the manner of how RCQs and RCTs had been constructed by the subjects of the control groups during the pretest and posttest stages (refer to tables 7.2.1(ii), 7.2.4(i) and (ii)), it can be assumed that the significant changes in the nature of RCQ and RCT production experienced by the *experimental groups* during the *posttests* were largely due to the *treatment* given to them in the workshops.

The results that have been discussed in detail in the course of the study have considered all the questions put forward in the research hypotheses and accomplished all the objectives that this research has aspired to achieve. The null hypotheses are all rejected and there is evidence here to support the alternative hypotheses.

The results of this study bring forward several implications for classroom teachers, text-books authors, curriculum innovators and planners. The implications are :

1. It is likely that generally in Malaysia, there is at present an abundance of lower-order (literal) RC questions and tasks designed by teachers who are not aware or trained in the use of taxonomy of questions in accomplishing the tasks.

2. The cognitive-domain taxonomies (e.g. the Bloom taxonomy, 1956) can be integrated with the affective-domain taxonomy (e.g. Krathwohl et al's, 1964) to be utilized in the construction of RC questions or tasks which are cognitively and affectively balanced. The integration of the two taxonomies have produced the *Cognitive-Affective (Cogaff) Taxonomy* used in the present study.

3. Teachers will need to receive specific training in asking higher-order questions and designing divergent tasks, especially, inference, evaluation (cognitive), appreciation (affective). One effective way of doing this is by using a taxonomy of questions e.g. the Bloom taxonomy, the Cogaff taxonomy, the Barrett taxonomy, etc.

4. This chapter has presented clear and sometimes dramatic evidence that in pre- and in-service workshops teachers can change their ways of formulating RC questions and tasks to involve far greater proportions of higher order questions. There is, perhaps, some implication that, if they can, teachers will use this changed pattern in the classroom thereafter (most in-service courses operate on just this assumption). However, such classroom application and continued practice is a separate question from the present demonstrated potential to do this, and this separate question will require further research before this implication can be confirmed. This present study suggests that such further investigation will be worthwhile.

5. The experimental groups' posttest correlations between RCQs and RCTs suggests that the production of one influenced the production of the other (or vice versa) or there is a common underlying factor, which is yet to be investigated. Further exploration would, again, be

worthwhile, to see what this link between RCQs and RCTs is. At present, since correlation does not necessarily imply causation, this evidence here does not really warrant the implication that RCTs should be based on RCQs, or the reverse. The evidence does, however, clearly indicate that the cognitive demands of both can be improved when teachers are more aware of taxonomies. This, in turn, however, does not imply that using taxonomies is the only or best way to improve RCQs and RCTs; this study only demonstrates the potential to improve them through the application of a taxonomy.

6. Teacher training institutions should provide instruction in the process of comprehension and how it is related to thinking abilities (e.g. creative and critical thinking). Experiences in designing and teaching various kinds of comprehension questions, as well as in analyzing the comprehension processes in currently used RC text books should be provided as a part of teacher training. Teachers must also understand how to evaluate pupil performance in relation to comprehension skill usage competence.

This chapter has focussed on pre- and in-service teachers' own production of RCQs and RCTs from classroom texts. However, the English textbooks in Malaysia, as in other countries, already have reading passages (for reading comprehension and for general or integrated language skills development) and generally, RCQs and RCTs. This raises the question of how these published RCQs and RCTs relate to lower or higher order cognitive demands, affective responses, and LOTPs. If the Malaysian teachers generally use lower cognitive levels in their own RCQs and RCTs, will the published textbooks also do so? Alternatively, since the textbooks are based on the KBSM will they have taken into account the syllabus demands (and those of the National Philosophy of Education and of the principles of Vision 2020) to develop improved levels of critical and creative thinking?

The next chapter seeks answers to these questions.

CHAPTER EIGHT
CONCLUSION
DOCUMENTATION AND SUGGESTIONS FOR FURTHER RESEARCH

8.0 Introduction

This chapter provides the general conclusions of the study. It starts with an examination of the two English text books used in the upper secondary schools in certain schools in Negeri Sembilan. This provides the answer for the additional objective (objective 5) of the present study as stated in Chapter One (1.4). This aim is important in the light of determining the *levels of thought processes* (LOTPs) of RCQs and RCTs used in the prescribed texts used by the subjects. The investigation focuses on the range and LOTPs (levels of thought processes) of the RCQs and RCTs used in these classroom materials. Previous chapters have considered teachers' formulation of reading comprehension questions and tasks. These were elicited in workshops. During the field work of this project it was not feasible to investigate the teachers' actual uses of questions and tasks in reading comprehension lessons. However, it is still one step nearer to classroom practice to investigate the questions and tasks used in the published textbooks which will inevitably be a major resource for teachers who are highly likely to direct their students to use these in the classroom or for homework. In fact, observation and experience suggests that for many teachers the text book is the major source of questions and tasks, especially in the period of implementing the new KBSM syllabus and of using new text books based on it.

Following the implementation of the KBSM syllabus in the secondary schools in 1988, the Ministry of Education through the Curriculum Development Center (CDC) has taken positive measures to ensure that the KBSM principles are implemented at all levels of education by all relevant authorities, e.g. curriculum planners, textbook writers, teachers, school inspectors, etc. New text books, planned and written according to the principles and guidelines of the new syllabus, are currently being used in primary and secondary schools. This documentary study of some of the text books currently being used in selected schools determines the nature of the RCQs and RCTs formulated in them. The other objective is to examine how much emphasis is given in the teaching of creative and critical thinking which will be indicated, to some extent, by the nature of RCQs and RCTs.

The questions and tasks typically used in the KBSM English language Textbooks for form Four and Five students currently being used in Malaysian upper secondary schools are assessed in this study. The books have been designed to realize the communicative aims of the English Language syllabus. A total, integrated approach to language learning as proposed by the KBSM has been adopted (Nagapan, S; Ganehsan, K; Mohd. Nor, N; 1991). The four main skills - listening, speaking, reading and writing, together with grammar and vocabulary, have been integrated within each unit of the books. The tasks are designed so that the students not only understand and practise these skills, but actively participate in activities that promote them.

As these books are currently being used in the upper secondary schools in Malaysia where RC questions tasks and activities are carefully planned and tailored to suit the needs and requirements as outlined in the new Curriculum, it suffices to say that the types, kinds and levels of RC questions tasks and activities produced in the books are relevant and reflective of the standards and criteria set by the Ministry of Education of Malaysia. The new form Four and Five English textbooks can be taken as representative of the style, format, questioning and tasks found in the other forms in other books of the same series.

8.1 *Reading comprehension*

This study looks into questions and tasks designed for the reading passages used in the books and examines the questions and activities found in the other sections as well (e.g. language focus, listening/speaking, writing and enrichment). The authors emphasize that the passages in the books have been selected and arranged primarily to:

o stimulate students' interest in the topic as well as in reading as a skill

o develop and provide practice in reading skills such as skimming, scanning, inferring, analyzing, synthesizing, predicting and tracing sequence and logical development

o create an awareness that reading is understanding not merely the written word, but understanding information between the lines and beyond them. Literary extracts from short stories, novels and poems help to create this awareness and these are included in this component. A wide variety of texts are provided,

again, to cater for the different levels of ability, as well as to expose students to as many varieties of passages as possible. The authors further emphasize that there is a section on discussion where students are encouraged to explore the main ideas in the passage/topic and to discus meanings and implications. It is their hope that this will encourage students to understand and relate the themes to their own lives. (Nagapan et al., 1991)

These objectives and emphases of the reading passages outlined by the authors are in line with the KBSM principles and are congruent with the aims of developing thought provoking activities developed through skills which call for the engagement of higher-order thought processes such as *inferring, analyzing, synthesizing, predicting* and *tracing sequence* and *logical development*. Their emphasis on creating an awareness 'that reading is understanding not only the written word, but information between the lines and beyond the lines', bear testimony to the authors' claim that such objectives 'will encourage students to understand and relate the themes to their own lives' (Ibid., 1991).

8.2 Prescribed aims

Among the objectives and aims of the books as a whole (i.e. including reading texts but also other elements) are:

o   to help students transfer what they have learnt to their own experiences so that language is used efficiently

o   to provide graded, varied and stimulating exercises to cater for different learning styles

o   to make the exercises a springboard for further activities and discussions that allow for divergent thinking

o   to stimulate imaginative thought through the use of reading passages

o   to inculcate moral values and an active response to the concept of values

(Nagapan et al., 1991)

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It is important to note from this list that the aims of RC questions/tasks design proposed in the present study are parallel to the aims and objectives of the tasks and activities planned in the text book (especially the last three aims above).

8.3 Assessment of Questions and Tasks

As the questions and tasks designed for each reading passage in both text books are in line with the aims and objectives specified in the KBSM, any units from the texts selected for assessment can be held to be representative of the aims and objectives as specified. Five out of twenty reading passages from each book were chosen by using a systematic random selection method for the purpose of the assessment. Passages 1, 6, 11, 16 and 20 were selected from Book 4 and passages 2, 5, 8, 11 and 14 were selected from Book 5.

8.3.1 Criteria of assessment of questions and tasks

The criteria for assessing the RCTs and RCQs in the selected units of the two textbooks are essentially the same as those used earlier:

1. The levels of RC questions and tasks in all phases of this study (i.e. pilot and field studies) were assessed using the Cognitive/affective taxonomy (adopted from Bloom et al., 1956; Krathwohl et al., 1964; Kissock and Iyortsuun, 1982).

2. The assessment of each question and task was carried out by two other raters, apart from the researcher himself, who met on a number of occasions in accomplishing the task. Inter-rater reliability is not discussed for the rating of each question and task was done on a consensus basis shared by all the raters.

3. It was decided by the raters that when more than one taxonomic or comprehension levels are involved in one particular question or task, the highest level is taken for the final consideration. This is to avoid the possible inadmissible existence of the highest category within a particular range of levels if a score is taken based on the average counts. It also avoids the complexities of category overlap.

4. Where necessary, each question and task is determined as either 'factual presentation' (FP) or 'Implied presentation' (IP) based on the 'unimplied' or 'implied' presence or nature of the answers sought after or relevant to from a particular passage

or text. This is done to avoid the confusion and difficulty in assessing the level of each question and task which had been experienced in the pilot study.

5. It is not the major purpose of this study to analyse each question or task according to its actual level of thought processes, though an attempt is made to do so as closely as possible at the initial stage of categorization of each question and task. The main idea is to establish whether each question or task belongs to either *literal* or *inference* categories.

The RCQs and RCTs found in the selected reading passages are analyzed by using the Cogaff taxonomy following similar methods adopted in the analyses of RCQs and RCTs in the main study (see Chapter Five). The analysis of RCQs and RCTs for books 4 and 5 are presented in Appendix 8.3.7. Syntheses of the results are provided in Tables 8.4.1(i) (for Book 4) and 8.4.1(ii) (for Book 5).

8.4 SYNTHESIS OF RESULTS: LOTPs of Questions and Tasks

Table 8.4.1(i): Analysis of RCQs and RCTs: Book 4 - *The New Integrated National Curriculum for Secondary Schools- English Form 4*

LOTP	READING PASSAGES										TQ (%)	TT (%)
	1		6		11		16		20			
	Q	T	Q	T	Q	T	Q	T	Q	T		
1 *Literal*	1	1	-	2	-	1	-	2	1	2	2 (4.2)	8 (13.3)
2 *Comp*	5	4	1	3	3	3	-	1	4	5	13 (21.7)	16 (26.7)
3 *Appli*	1	3	-	0	1	3	1	1	2	4	5 (10.4)	11 (18.3)
4 *Analys*	1	1	8	4	-	5	3	4	1	1	13 (27.1)	15 (25.0)
5 *Synthe*	1	1	0	2	-	0	4	4	3	3	8 (16.6)	10 (16.7)
6 *Evalua*	2	-	1	-	1	-	1	-	-	-	5 (10.4)	0
7 *Affect*	-	-	-	-	2	-	-	-	-	-	2 (4.2)	0
Total	11	10	10	11	7	12	9	12	11	15	48 (100)	60 (100)

Table 8.4.1(i) Key: (Q - Questions; T - Tasks; TQ - Total Questions; TT - Total Tasks)
(Showing how many questions and tasks of each type are found in selected reading passages)

8.4.1(i) Analysis of questions and tasks - Book 4

The analyses of RCQs and RCTS of Book 4 (see Appendix 8.3.7) are summarized in table 8.4.1(i). It was discovered that 25.9% of the RCQs designed based on five passages randomly selected from Book 4 were *literal* while 74.1% were *inferential*, likewise, it was discovered that, as far as the RCTs are concerned, 40% were *literal* while 60% were *inferential*. Looking at the breakdown of the *inferential* LOTPs of the RCQs and RCTs, a high proportion of both questions and tasks were concentrated within the range of *analysis* and *synthesis* levels. Precisely 27.1% of the RCQs were of the *analysis* level and 16.6% were *synthesis* which accounts for 43.7%

of the entire make up. The RCTs, likewise, presented 25% *analysis* and 16.7% *synthesis* levels and this totals 41.7% of the tasks. The *evaluative* aspect accounted for 10.4% of the questions and none in the tasks. Like the evaluative, the *affective* aspect was found only in the questions; there were none in the tasks. Considering the awareness shown by the author(s) of the *evaluative* and *affective* aspects of questioning (indicated by the presence of some questions of such levels in the RCQs) the absence of both domains in the task construction in the book is a cause for concern. Despite the KBSM's emphasis on the inculcation of higher-order domains (e.g. *evaluative* and *affective*) in order to produce cognitively and affectively balanced students, this tendency to neglect these levels may prove to be discouraging. Nevertheless, it is a creditable effort on the part of the authors to be able to produce a substantial proportion of higher-order RCQs and RCTs (especially the *analysis* and *synthesis*) in the text book in keeping up with the standards expected by the national curriculum.

Table 8.4.1(ii): Analysis of RCQs and RCTs: Book 5 - *The New Integrated National Curriculum for Secondary Schools- English Form 5*

	READING PASSAGES											
	2		5		8		11		14			
LOTP	Q	T	Q	T	Q	T	Q	T	Q	T	TQ	TT
1 *Literal*	-	7	2	4	1	4	-	1	-	1	3 (5.4)	17 (27.4)
2 *Comp*	-	1	5	1	1	1	1	-	-	-	7 (12.5)	3 (4.8))
3 *Appli*	-	5	1	4	-	2	-	-	2	3	3 (5.4)	14 (22.7)
4 *Analys*	6	-	5	2	1	4	-	4	-	4	12 (21.4)	14 (22.6)
5 *Synthe*	-	1	3	4	2	3	5	2	5	1	15 (26.7)	11 (17.7)
6 *Evalua*	-	-	1	1	4	-	1	1	1	-	7 (12.5)	2 (3.2)
7 *Affect*	3	1	2	-	2	-	1	-	1	-	9 (16.1)	1 (1.6)
Total	9	15	19	16	11	14	8	8	9	9	56 (100)	62 (100)

Table 8.4.1(ii) Key: (Q - Questions; T - Tasks; TQ - Total Questions; TT - Total Tasks)

8.4.1(ii) Analysis of question and tasks - Book 5

From table 8.4.1(ii), which reports the analysis of RCQs and RCTs in the selected passages of Book 5, the most noticeable feature is the general spread of the types of both questions and tasks. 82.1% of the questions analysed in the comprehension exercises were *inferential* as opposed to 17.9% of *literal* types. This emphasis on *inferential* aspects was also found in the tasks constructed in the book; 67.8% of the comprehension tasks formulated were of the *inferential* types leaving 32.2% *literal*. Both RCQs and RCTs were heavily concentrated within the middle range of the taxonomy; *application, analysis* and *synthesis* which accounted for 53.5% of the RCQs and 63% of the tasks. Similar trends were observed in Book 4 where these

three inferential domains accounted for 53.5% RCQs and 60% RCTs. In Book 5, the *evaluative* type took 12.5% of the questions while 3.2% were discovered in the tasks. 16.1% of the questions were of the *affective* level while only 1.6% were found in the tasks. The absence of the *evaluative* and *affective* RC tasks in Book 4 and their negligible presence in Book 5 is to an extent made up for by the reasonable representation of the RC questions in both books. This may reflect a lack of awareness on the part of the author(s) of the need for correlations between questions and tasks (assuming that both should have a representative and balanced range of levels). Such a tendency leads to an unbalanced production of questions and tasks where the higher inferential domains are much less used in tasks.

8.4.1(iii) Teachers' RCQs/RCTs vs Texts'

The subjects' preference (when designing their own questions and task) for the low-order *literal* RCQs and RCTs were respectively, 97.6% and 100% *literal*. This was shown during the pretest sessions carried out at UPM and the selected schools in Negeri Sembilan (refer to tables 7.2.1(i); 7.2.2; and 7.2.3). In comparison, the higher-order *inferential* levels of RCQs and RCTs found in the school prescribed text books were 68.7% RCQs and 60% RCTs *inferential* in Book 4 (refer to table 8.4.1(i)), and 82.1% *inferential* RCQs and 67.8% *inferential* RCTs in Book 5 (refer to table 8.4.1(ii)). On this evidence, the following interpretations can be made;

i. Many teachers have not yet mastered the skill of formulating higher-order *divergent* RCQs and RCTs, despite the Malaysian government's emphasis on such domains in order to inculcate critical and creative thinking skills through the KBSM syllabus introduced about a decade ago.

ii. The teachers seemed to rely heavily on whatever questions and tasks were presented in the prescribed texts. This apparent reliance on the text books in trying to achieve the KBSM's objectives is less accommodative, as far as the new curriculum is concerned, if their participation is characterized by stereotyped understanding and rigidity in classroom practice which might allow little room for creativity and originality to take place. This is undesirable in the light of the government's hope of achieving the highest possible standards that can only be achieved via teachers' own creativity and

divergent approaches in implementing the new curriculum, yet it seems to be the case.

iii. The teachers' apparent reliance on lower-order RCQs and RCTs, shown when they are asked to make their own, may imply that they will not make the best classroom use of the RCQs and RCTs found in the published materials, even though the latter have a high percentage of higher-order RCQs and RCTs and a better balance and broader range than the teachers' ones. There is, then, still an argument for the need to raise teachers' awareness of higher-order RCQs and RCTs since, in practice, teachers mediate students' use of the textbook in the classroom.

iv. A more systematic and deliberate effort is required in order to exert a more positive impact on teachers' understanding and attitudes towards the new curriculum. This move is essential in order to make them professionally and mentally prepared so that they can execute a broader range of skills to be effective curriculum subscribers who play a vital role in ensuring the success of the new curriculum.

v. The teachers' patterns of question and task design revealed a dramatic change when the Cogaff taxonomy was introduced and used in the construction of the RCQs and RCTs in this study. The KBSM curriculum has, in broad general terms, stipulated its aims and intentions, yet many teachers have apparently failed to interpret them in classroom practice despite having attended many courses organized by the Ministry of Education in order to get themselves equipped with the relevant knowledge and skills (Pukal Latihan KBSM 1992). The Cogaff taxonomy offers a practical way of designing thought provoking questions and tasks in line with the Ministry's suggestions as stipulated in the KBSM (1993). Although its long-term effects have not yet been ascertained, its short-term usefulness (as shown in the posttests) seems promising. 'A final criterion is that the taxonomy must be accepted and used by the workers in the field if it is to be regarded as a useful and effective tool. Whether or not it meets this criterion can be determined only after a sufficient amount of time has elapsed' (Bloom, 1956: 24; 1994: 27).

8.5 Suggestions from the Study

Based on the results of the study, the following implications and suggestions may be of significance for consideration by relevant authorities;

1. *Streamlining efforts between Teacher Training Institutions*

There is a need for the three types of institutions namely, the Ministry of Education, the schools (teachers) and UPM and other higher institutions that deal with teacher training to streamline their efforts and to work together with the teacher training programme as an integrated force, rather than let it function in isolation, for the following reasons;

> i. These institutions, although physically and administratively separated, are mutually linked to the outputs produced by the teachers as a result of their education process in which all the institutions are directly or indirectly involved, one way or the other. To the author's best knowledge, such a 'work-together ethic' has never been established. The absence of such an ethic may lead to each institution operating in isolation, as far as teacher-education curriculum is concerned, despite the fact that they are directly or indirectly linked to the products of the system.

> ii. Once the three types of institutions involved in teacher-education system are united in planning and actions, then the aims and objectives as ascribed in the KBSM syllabus may be more easily achieved since chances of misinterpretation of its concept would be minimized.

> iii. The move will help to unite all the institutions in streamlining plans and strategies for the improvement of teacher-training and quality of teaching in the country.

2. *Curriculum for reading courses at teacher-training institutions*

UPM's Faculty of Education, as a teacher-training institution (apart from other academic and research obligations to be met nationally or internationally) needs to operate within the national philosophy of education as envisioned by the KBSM in exercising its duty and roles in order to produce teachers who are pro-active as well-informed curriculum subscribers. UPM, in charting its educational principles and teaching curriculum, should not detach itself from those principles conceptualised by

the Ministry of Education. This is because their 'output' produced, is the potential subcribers of the national curriculum i.e. new teachers. Therefore it seems important and timely to examine the courses (especially reading courses) currently being offered by the TESL department (Faculty of Educational Studies). This department is responsible in producing teachers trained in the teaching of ESL, yet, in its course and subjects outline, it seems to be detached from the philosophy and principles as envisaged in the KBSM. The following suggestions may need to be considered;

i. There is a need for a redefined Reading course curriculum in order to fulfill the requirement of the new philosophy of the KBSM. This is congruent with the suggestion offered by Pearson et al. (1992: 170-171) when they summed up a chapter on 'Developing expertise in Reading Comprehension' which posited the following interpretation of a curriculum;

> In a comprehension curriculum we would want to see question and activities that ask children to respond to literature(texts) as reflections of their lives and experiences. These activities should be included in a total reading programme that focuses not only on comprehension but also on reading as an aesthetic experience.

ii. The reading syllabus designers should strongly consider including a component which aims at training the students so that they become competent users of higher-order thinking mechanics that are widely held to be useful in producing creative and critical thinkers. Like the 'lateral' thinking of Edward de Bono, currently being practised in some school and higher institutions in Malaysia*, the Cogaff Taxonomy is a possible source of translating the desired divergent thinking ingredients into classroom instructions. While 'lateral thinking' looks at how problems can be solved, the Cogaff taxonomy helps to categorise those problems. Suggested emphases and contents of the subjects are;

a. Bloom's taxonomy of educational objectives (or the Cogaff taxonomy);

b. Other taxonomies of questions, e.g. Barrett's, Taba's, FTCB, TPQI, etc.

c. The mechanics of translating the different taxonomies into classroom instructions in dealing with RC question and task construction using any reading materials.

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* de Bono's *Lateral thinking* is currently being taught as a subject at ITM (Mara Institute of Technology) and in some science schools in Malaysia (Seng, 1990: 25) (see Chapter One).

d.   Assessment of pupils' performance based on the new format of reading comprehension lessons.

e.   Assessment of reading materials using the criteria as described by the taxonomy.

f.   Preparation of lesson plans and teaching using the taxonomy.

g.   Current application of the taxonomy and other problem-solving mechanics in schools and higher institutions in Malaysia and abroad.

h.   Current and related research on the taxonomy and problem-solving oriented subjects in Malaysia and abroad.

3. *Mastery of KBSM among School Teachers*

The need for the teachers to interpret the principles and philosophy behind the conception of KBSM curriculum is paramount in Malaysia. Little is likely be achieved if teachers fail to translate the tenets of the KBSM into their classroom practice. In Reading Comprehension lessons, as indicated in this study, the Cogaff Taxonomy offers a practical guide as to how RC questions and tasks, among the basic ingredients of the teaching reading comprehension, can be systematically handled in line with the principle of developing students' higher-order thinking skills, as suggested by the KBSM curriculum.

4. *National school examination system*

There is a need to revise the examination assessment procedure which is currently widely practiced in the assessment of the National Examinations e.g. PMR (Examination of the Lower Secondary) and SPM (Malaysian Certificate of Education for the Upper Secondary). National examinations, especially those related to the reading subjects at secondary school levels which are dominated by multiple-choice (MCQ) types of questions, are in need of reassessment and redefinition in light of the current focus on the KBSM which aspires, among other emphases, to produce creative and divergent-thinking students. Examination questions on reading topics should be consistent with what is envisaged by the curriculum, i.e. the higher-order or divergent-type of questions should become   major components of any tests alongside the necessary low-order or convergent types. The normal scoring or assessment system should no longer be based on prescribed answers outlined by teachers or curriculum planners but, rather, on generated logic and inferences. Scores or grades of

achievement are not only based on student's ability to recall facts but rather on their ability to infer and evaluate. The examination can thus become more student-centred rather than curriculum or teacher-centred. Examiners and teachers need to equip themselves and be proficient with an open or subjective assessment system in order to be able to assess a student's academic performance on certain subjects based on a wide range of logical and acceptable answers.

5. Implications for education

There are other implications that can be considered especially from the perspective of the academic curriculum in schools and higher institutions of learning that relate to teacher-training.

1. Cognitive processes that relate to creative and critical thinking are subject to training (Dunkin and Biddle, 1974). Teachers can play a role in sharpening a student's creativity and critical thinking. In Reading Comprehension, one way of doing this is by means utilising RC questions and tasks which are characterized by higher-order, divergent types without undermining the appropriate use of low-order convergent types. As the workshops of this study have shown, teachers themselves can be trained to use questions and tasks which relate to more creative and critical thinking.

2. Cognitive development follows certain developmental sequences, in which mastery of each preceeding step is a prerequisite to the mastery of the next (Taba et al., 1964; Taba, 1966). This is demonstrated in the ability of the subjects or teachers in designing the higher order questions or tasks after getting acquainted with the different types of levels of thought processes and having reflected on the characterisation of each type in relation to the questions and tasks designed, e.g. a student engages in less effort in identifying literal information compared with comprehension or distinguishing application, or analysis from synthesis, or evaluative from affective, but still uses some literal levels.

3. Thought matures through the continuous organisation and reorganisation of conceptual structures involving the processes of assimilation and accommodation (Taba et al., 1964; Taba, 1966). Through training and practice, the teachers became familiar with the technique and styles of formulating RC Questions and Tasks using different level of thought processes (low to higher-order thinking skills). These are suggested by the Cogaff Taxonomy in order to produce a set of convergent and

divergent questions which aim at engaging students in higher-order thinking skills as prescribed by the KBSM curriculum. They were made aware of the possibility of using higher-order RC questions as the basis of constructing RC tasks with similar types and qualities.

The implications of the above principles for education are many, but especially the following:

a. Learning tasks may proceed in cycles in which the simpler concrete cognitive operations precede the more complex abstract operations (Dunkin and Biddle, 1974). This can be carried out by getting students to engage in the low-order questions and tasks before moving into the higher-order ones. It is important for teachers to remember that lower levels must not be exclusively favoured over the other higher levels as students need to know the basics before they are prepared for the more complicated and abstract manifestations (ibid., 1974);

b. Development of thought is not short-term goal but requires time, practice in relation to a curriculum, and teaching strategies that include both an "upward spiraling" in the content and demands for cognitive functioning. This can only be achieved when a curriculum (Dunkin and Biddle, 1974) seriously considers including the necessary elements that call for such a demand to be implemented by the curriculum subscribers. Teachers, as subscribers, should be able to interpret the 'hopes and wishes' of the curriculum in their classroom presentations. This can only be realised when a clear method or pedagogical system is outlined in line with the aims and objectives of the curriculum;

c. RC task construction as embodied in the Cogaff Taxonomy may imply that the *literal* and *comprehension* types should be introduced alongside the higher-order types of *analysis, synthesis, evaluative* or *affective*. This is in line with the principle of task rotation which states that, 'Learning tasks should be rotated systematically according to different types of tasks, thus avoiding both a prolonged exposure to task types which focus on facts without reshaping more cognitively demanding conceptual schemes and yet without premature leaps to tasks which promote more complex types of thought (Dunkin and Biddle, 1974: 257).

d. One problem that teachers normally face during classroom instruction is the organisation of educational objectives. This problem can be minimised when teachers are made aware of how information can be categorised into different

categories of thought processes as suggested by the Cogaff Taxonomy, for conceptual reorganisation cannot be given to teachers/students. Rather, they must be led to discover ideas and conceptual structures of their own (Dunkin and Biddle, 1974). A question taxonomy will be useful in such a situation.

e. The knowledge of the Cogaff Taxonomy, is intended not only to equip the users with the idea of how to design questions and tasks but also furnish them with the ways of assessing reading texts in terms of quality by looking critically at the kind of questions and tasks prescribed in the texts. This possibility is demonstrated in the present research in an investigation of RCQs and RCTs in English text books.

8.6 GENERAL CONCLUSIONS

The Ministry of Education via the National Integrated Curriculum for Secondary Schools (KBSM) has promoted, among other things, the importance of creativity and critical thinking to be considered in classroom activities. This emphasis has been highlighted in many sections, headings or sub-headings of the curriculum, especially in the reading courses. The Ministry's efforts to encourage the teachers to become competent to meet the demands of the new syllabus cannot be underestimated. Intensive courses and seminars were held for both primary and secondary school teachers up and down the country to equip them with the necessary skills and insights into how the KBSM's philosophy could be translated into classroom activities. New school prescribed text books (such as those analysed in this chapter) were written, where contents were planned and designed according to the specifications of the syllabus. One major question remains: 'Has the Ministry succeeded in its mission, looking at it from point of view of the teacher's application in practice of the theoretical ideas and how RC lessons are handled in classrooms?'

The fact that more than 85 percent of questions and tasks constructed by the UPM's subjects during the pretest session conducted in this study (refer to tables 7.2.2 and 7.2.3 in Chapter Seven) bear testimony to the UPM's negligence of the KBKK programme which, as a result, deprives the student teachers from mastering the skills as indicated by their poor construction of questions and tasks during the pretest session.

The teachers' comfort in using tasks and activities prescribed by text books does not guarantee the success expected by the Ministry of Education. If there is a tendency for teachers to depend on text books in executing their classroom duty, this will necessarily constrain the realization of the Ministry's expectations of producing the responsible teachers envisioned by the new curriculum. Such teachers would be able to:

> *...diversify on the classroom activities in order to achieve the aims as specified by the KBSM. The suggested activities would include those that take place through experiential learning via work-projects, simulation, role-play and case studies. These activities would enable the students to possess knowledge and skills and to use them in diversified situations which are relevant to their everyday life.*
>
> Pukal Latihan KBSM (1992: 184)

As far as RC lessons are concerned, the need for teachers to diversify their classroom activities suggests one important implication for how teachers should use different authentic texts apart from the prescribed ones in order to make lessons more viable and interesting. The selection of reading texts should not pose any problems for the teachers as there are many sources from which they can make their choices. The formulation of questions and tasks, major ingredients of the RC lessons, based on the selected texts would become crucial as teachers need to be competent in how the questions and tasks should be designed in order to be in line with the KBSM's suggestion which emphasises that;

> *In the effort of developing the students' intellectual prowess, the questioning techniques between teachers and students are the basic ingredients in the teaching and learning processes. Therefore, teachers should ask questions which are relevant, diversified and challenging in order to activate the students' intellectual prowess. Questions should always emphasise enquiry where students are required to think about cause and effect, analysis and synthesis, predictions, evaluation and hypothesis statements.*
>
> (ibid, 1992: 187)

The methods of how tasks and questions can be handled, congruent with the suggestions put forward in the KBSM, seem to be very much in tandem with the scope and practice proposed by the Cogaff taxonomy. The efficient application of the taxonomy has indicated that teachers who are trained in the Cogaff taxonomy can be induced to greater use of higher level categories. This finding verifies the fourth objective of the study. This is in line with the finding of Willson's (1973) experiment

which illustrates that, "This experimental manipulation was an effective means of improving the cognitive level of the classroom situation as a whole, by increasing the level of the teacher's cognitive mode, which, in turn, increased the pupil's cognitive mode" (pp. 423 - 429). This evidence strengthens the belief that if teachers are able to increase the levels of the teachers' questions, they may consequently be able to increase the students' levels of thinking. One way of achieving this aim is by adapting the idea as suggested by the Cogaff taxonomy in RCQ and RCT design and construction. As shown by the results of the present study (cf: chapters seven and eight), it has been discovered that teachers' manipulation of the taxonomy in RCQ and RCT construction enables them to produce thought provoking, higher-order questions to keep up with the demands of the new focus in education in Malaysia.

The application of the Cogaff taxonomy as a practical and reliable tool in designing divergent/inferential questions and tasks as demanded by the KBSM syllabus (as discussed in previous chapters) has been emphasised. Its relevance to the UPM's reading syllabus is clear. Its close alignment with the current KBSM syllabus in association with its principle and practice has been empirically presented and discussed. One practical way of using varied inferential RC questions as the basis of constructing equally higher-level tasks has been demonstrated in the introduction to pre- and in-service teachers (as demonstrated in table 7.2.2). Most importantly, as far as reading comprehension lessons are concerned, the taxonomy seems to have the qualities and potential to be used as a means designing lessons as vehicles of training and equipping students to be more creative, critical and pro-active who are at the same time emotionally balanced as emphasized by the KBSM. This potential can be realized by teachers who use the taxonomy to give appropriate emphasis to higher cognitive levels, balanced by use of the affective level. Further links to moral education (also emphasized in the KBSM) can be made via the use of

the taxonomy to encourage rational decision-making based on moral considerations and to develop rational thinking based on moral principles. These last two points are part of the current Malaysian to Moral Education (Md. Jadi, 1997: 101) This will have a far-reaching effect in uniting the philosophy, as emphasized by the KBSM, with UPM's reading syllabus.

The research objectives of the study (stipulated in Chapter One) seek to determine the following; i.) The levels of teachers' RCQs according to different levels of thought processes; ii) The levels of teachers' RCTs according to different levels of thought processes of the Cogaff taxonomy; iii) Whether teachers' application of the Cogaff taxonomy is significantly correlated with their production of higher-order thinking processes; and iv) Whether the RCQs constructed by means of the Cogaff taxonomy are significantly correlated with the formulated RCTs have been discussed, proven and established to the affirmative. Overall, there was a drammatic change in the teachers' behaviour in RC question and task designing displayed in the results. The higher-order RCQs and RCTs were highly valued and constructed by means of the Cogaff Taxonomy. Redfield and Rousseau (1981) in their research on 20 studies of teachers' use of 'higher' and 'lower' 'cognitive' questions concluded that higher-order questions played a pre-dominant role during classroom instruction. The present study shows that with Malaysian teachers this is unlikely to be the case unless teachers are aware of, and systematically apply the higher-order levels; the use of a taxonomy promotes such awareness and application.

On a broader front, one would hope that the results of this research would apply elsewhere, outside Malaysia. This hope raises a point of speculation: The vision for modernization, the national philosophy of education, leaders' clear calls for critical and creative thinking, together with these elements translated into a national curriculum, have all been cited in this research as justification for attempting to raise the cognitive levels in RCQs and RCTs. One can speculate that while such attempts already have validity in their own right, in any country, the attempts to do this in Malaysia may also be motivated by subjects' (teachers') knowledge of the above
justifications. That is, Malaysian teachers are very familiar with the elements of justification cited, so perhaps, once the connection between them and RCQs and RCTs is apparent, the justification becomes motivation for change because teachers see the need for change, they know that this particular change is officially recognized and desired, and are aware that this is in some sense part of a national effort. This is speculation because the present research has not investigated this point; however, if it has some validity then a further speculation would be whether such conditions (of both justification and motivation) might be helpful for promoting teacher change elsewhere.

Limitations of the Present Research

In any study of this nature there are certain limitations due to factors which the investigator cannot entirely control. One limitation is the time and physical constraints[*] faced by the author in conducting the present study. The lack of time precluded the possibility of following up the ways in which all the participating teachers actually taught reading comprehension with their students. The following other limitations are also significant.

(1) The use of the taxonomy in the analysis of the subjects' questions and tasks does not consider the background of the subjects. Thus, there has been no investigation of gender, social class, possible urban-rural variables, ethnic group membership, or mother-tongue background (Malay, Chinese, Tamil or others). To this extent, the present study is exploratory; it is not known how such background variables, singly or in combination, might influence any preferences or predispositions of using the levels of the taxonomy.

(2) The next limitation concerns the fact that a taxonomy does not take into account the overlap which may exist in certain types of questions and tasks. At times there was difficulty in determining the proper classification and the final decision represents the perceptions of the classifiers. Two other raters helped the author in classifying the RCQs and RCTs. All raters met several times to discuss the final analysis. Inter-rater reliability in the classification of RCQs and RCTs was not statistically determined because the final decisions were made by consensus of opinion between all three raters. In cases of overlap of questions or tasks in categories of the taxonomy, the higher level was counted. In one sense, this gives participants the benefit of any doubt. An overlapping of proper placement or categorization within each of the seven domains of the taxonomy often exists when classifying certain types of questions/tasks but is less likely to take place across the two major

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[*] Time/physical constraints were due to the fact that the field study, covering more than one hundred subjects from different institutions and locations, was conducted alone by the researcher within a period of about three months.

categories of *literal/knowledge* (lower-order thought processes) and *inference* (higher-order thought processes) levels of thought processes of the taxonomy. The main focus of categorization of questions and tasks is to establish the latter. The limitation here is that the present research, by accepting the highest interpretable level for a question or task, has sidestepped issues of overlaps and combinations of cognitive or affective levels. Again, the present study is exploratory in its prime focus on literal versus inferential. Later research could be more precise in examining combinations of levels and overlapping levels in the uses of the taxonomy with questions and tasks.

(3) In the analysis of the results, the *affective* domain is considered as one that belongs to the higher-order categories in the Cogaff taxonomy when applied in categorizing the RCQs and RCTs. This is based on the considerations already discussed earlier in this chapter (see 1.1 and also Chapter Five). This may be raised as bias and considered a discrepancy. Anticipating this, the author, in the analysis of the results of the study, has decided to have the RCQs and RCTs analyzed in two ways: First, by using the Cogaff taxonomy where the *affective* domain is considered as the seventh category (of the higher-order level) used in categorizing the RCQs and RCTs. Second, the *affective* domain is considered as a separate level and not considered as one of the higher-order categories (see results in tables 7.2.3 (a) and (b) and 7.4(i) and (ii)).

(4) The use of two other raters in categorizing the questions and tasks by the subjects, other than the writer, involved the perceptions concerning classification of other individuals. Differences were amicably resolved through discussion, but different evaluations of the levels of questions and tasks were not recorded so they have effectively been glossed over after agreement was reached. While there were not many cases of disagreement, the initial differences in evaluation were not taken into account.

(5) The random selection of subjects from one university and some schools in one state in Malaysia may not give a clear picture of the entire population of teachers in the country. Once again, the present study is exploratory in this regard; further research might compare subjects in different universities, use larger samples of experienced teachers, and include primary schools and non-university sector institutions.

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(6) The present study has focussed on teachers. Clearly it is of major long-term importance to include study of pupils' questions and even pupils' own setting up of tasks (for themselves or for their peers) if a more learner-centred approach is to be developed and if attention is to be given to learner-autonomy and full development of critical, creative thinking. Again, this is a clear direction for further research.

(7) The present study has not looked at teachers' actual classroom practices of asking comprehension questions (orally or in written formats) or formulating comprehension tasks. This is perhaps the most serious limitation (imposed by time constraints and problem of access) of the present research. A vital next step for further research is to correlate the present pre-post intervention outcomes with similar research which follows the teachers into classroom practices. Probably smaller samples would have to be accepted because, as the present researcher found, classroom follow-ups would be time-consuming and access to a number of schools and classrooms would need to be negotiated.

(8) The present study focussed on the reading comprehension lesson, as typically taught at present in Malaysia. While this has been a natural focus for this research, in its context, it has been limited by not examining reading comprehension questions and tasks in other curriculum subjects, or other comprehension activities in the English curriculum, or by not considering a more integrated skills approach to reading. Again, these three limitations suggest that future directions of investigation should be broadened across the curriculum, across English skills and to include an integrated skills approach.

Recommendations for Further Research

During the course of this study, the need for additional research concerning related problems became apparent. These included:

1. An analysis of teacher training methods to determine if teachers are receiving training in how to ask and develop comprehension questions and activities.

2. A comparative study of the behaviour of teachers in asking questions in the L1 situation in Malaysia (those who teach Malay as a subject) as compared with the questioning techniques applied by those who teach English (L2) as a subject.

3. A comparative study of the RC questions and tasks used in the Bahasa Melayu (Malay) RC text-books (L1) with those text-books used in English Reading comprehension lessons (L2).

4. A comprehensive study on the effects of the higher-order questions and tasks on students' academic performance and students' creativity.

5. A comprehensive study on RCQs and RCTs used in all the prescribed texts used in primary and secondary schools in Malaysia.

Within the premise that the RC teaching and learning treated as 'critical reading', as already mentioned in Chapter One (see 1.3), which is defined as '...as part of critical social literacy which entails the analysis and evaluation of textual ideologies and cultural messages, and an understanding of the linguistic and discursive techniques with which texts represent social reality, relations, and identity' (Husen and Postlethwaite, 1994: 1194), it is hoped that whatever thoughts, ideas, methods or suggestions that have been forwarded in the course of the study will contribute towards the development of learning, teaching and teacher training, in Malaysia, within the context and scope of the New Integrated National Curriculum (KBSM). As Huey (1908) succinctly pointed out, *reading* is the means by which the world does a large part of its work. The slightest improvement either in the page or in the method of reading means a great service to the human race.

APPENDIX 1

2.2: Materials Used during the Workshop

Cognitive taxonomy

Taxonomy level	Summary/Sample question	Key word	Ability demonstrated	Type of thinking
Affective	Questions at this level ask pupils to respond with a statement of feeling, emotion, or opinion without a standard of appraisal. *Describe your feeling about the Kobe incident if you were the son/daughter of one of the victims?*	feeling, emotion,opinion	Expressing feeling, emotion, opinion	Expressive/ thoughtful
Evaluation	Questions at this level ask pupils to use criteria to make and justify judgments about something. *Is the group's conclusion consistent with the results of their experiment?*	Judge	Forming judgements	Evaluative/ judgemental
Synthesis	Synthesis questions ask pupils to be creative by putting a number of ideas or objects together in a way that is unique and new to them. There are many different solutions and no right answers. *What plan would you draw up to advise governments in West Africa to check the spread of the desert?*	Create	Using information	Divergent
Analysis	Questions at this level direct pupils to determine the parts of a problem, solution, or idea and show how they are related. *Why did the students who farmed that plot work so hard?*	Why		
Application	Questions at this level require pupils to demonstrate the use of ideas. They must apply their knowledge and understanding to new situations and use it to solve problems. *Using the procedures discussed in the text: How would you solve the following problems?*	How		
				G. Mustapha (1995).Pilot Study

Comprehension	A comprehension level question requires pupils to express ideas in their own way and demonstrate understanding of a communication, idea, or object. Two subcategories are translation and interpretation. *What is meant by the word `tragedy' as described in the text?*	Understand		
Translation	Pupils are to rephrase or restate an idea without changing its meaning. They are not expected to explain or use it. *What does the rule mean when it says: `A player should not wear anything which may cause injury to another player?*	Restate	Understanding	Convergent
Interpretation	Pupils relate and compare things or ideas to one another and explain or summarise a communication. *How is the Japanese flag different from the British flag?*	Compare		
Literal	A literal level question requires pupils to recall from memory previously learned facts, concepts, generalisations, and theories. *Who is the boy described in the story?*	Who What Where When	Repeating information	Remembering/ recall

Ghazali Mustapha (1995)., Pilot Study. Adapted from Kissock and Iyortsuun (1982), Davis and Tinsley (1968)

Bloom's Taxonomy of Educational Objectives in the cognitive domain (1956)

1. *Knowledge*
   . Knowledge of sepecifics
   . Knowledge of ways and means of dealings with specifics
   . Knowledge of the universals and abstractions in a field

2. *Comprehension*
   . Translation
   . Interpretation
   . Extrapolation

3. *Application*
   . Applying knowledge
   . using knowledge

4. *Analysis*
   . Analysis of elements
   . Analysis of relationships
   . Analysis of organizational principles

5. *Synthesis*
   . Production of unique communication
   . Production of a plan, or proposed set of operations
   . Derivation of a set of abstract relations

6. *Evaluation*
   . Judgements in terms of internal evidence
   . Judgements in terms of external criteria

Sander's Taxonomy (1966)
(An extention of Bloom's)

1. *Memory*   -   The student recalls or recognizes information.

2. *Translation*   -   The student changes information into a different
                         symbolic form of a language.

3. *Interpretation* -   The student discovers relationships relationships
                         among facts, generalizations, definitions, values, and
                         skills.

4. *Application*   -   The student solves a lifelike problem that requires the
                         identification of the issue and the selection and use of
                         appropriate generalizations and skills.

5. *Analysis*   -   The student solves a problem in the light of conscious
                         knowledge of the parts and forms of thinking.

6. *Synthesis*   -   The student solve a problem that requires original, creative
                         thinking.

7. *Evaluation*   -   The student makes a judgement of good or bad, right or
                         wrong, according to standards he designates.

Taba Taxonomy (1966)
(Adapted from Taba, 1966)

1. *Recall*

This is the literal level, the level at which the student recalls or recognizes
information from the material which has been read. The comprehension skills
involved in questions at this level are listed as literal skills as in Barrett's.

2. *Analysis*

This level of questions would involve comprehension skills as listed below:
. Internalizing new information
. Applying what is learned to new situations
. Manipulating and restructuring beliefs
. Generating new ideas .
. Establishing an emotional response to the content

3. *Evaluation*

We may ask the students to draw a conclusion or to form judgement. In the
sequence lesson we could ask, "Why is it important to have the events in
correct sequence?" In the character analysis lesson we might ask, "Do you
know any persons in real life who are like the characters in the story?" or
"would you like to have one or moreof the characters for friends or for a
next door neighbour? Why or why not?"

4. *Application*

At this level the students are helped to decide how they might use the ideas
gained from the reading and discussion. we might ask the reader to solve a
problem using the information from the material read, or to solve the problem
creatively. Examples of questions at this level would be "How might we use
having events or steps in correct sequence in our everyday lives?" or "How
might we best get along or live with persons who are like the characters in
the story?"

Teacher-Pupil Question Inventory (TPQI)
(Adapted from Davis and Tinsley, 1968, p.141)

1. *Memory*   - The one questioned recalls or recognizes information (facts, generalizations, etc,);

2. *Translation* - The one questioned changes information into a different form (linguistic, symbolic, image, etc);

3. *Interpretation* - The one questioned states relationships between various types of data;

4. *Application* - The one questioned solves a realistic problem requiring the identification of the crucial issue or points and the selection and use of appropriate knowledge and skills;

5. *Analysis*   - The one questioned answers with explicit attention to the relationship (s) between the ideas expressed and with obvious awareness of the process employed in the reasoning;

6. *Synthesis*   -The one questioned suggests answers to a problem that is original, speculative, or creative;

7. *Evaluation*   - The one questioned makes a judgement according to explicit criteria (external or internal);

8. *Affectivity*   - The one questioned responds with a statement of feeling, emotion, or opinion without a standard of appraisal;

9. *Procedure*   - The question relates to classroom organization, student behaviour, or instructional management.

NOTE: Each question asked by the teacher or a pupil is to be scored in but a single category.

Florida Taxonomy of Cognitive Behaviour (FCTB)
(Adapted from Brown et al.. 1968)

1.1 *Knowledge of Specifics*
- Reads
- Spells
- Identifies something by name
- Defines meaning of term
- Gives a specific fact
- Tells about an event

1.2 *Knowledge of Ways and Means of Dealing with Specifics*
- Recognizes symbols
- Cites rule
- Gives chronological sequences
- Gives steps of process, describe method
- Cites trend
- Names classification system or standard
- Names what fits given system or standard

1.3 *Knowledge of Universals and Abstractions* .
- States generalized concept or idea
- States principle, law, theory
- Tells about organization or structure
- Recalls name of principle, law, theory

2.0 *Translation*
- Restates in own words or briefer terms
- Gives concrete example of an abstract idea
- Verbalizes from graphic representation
- Translate verbalization into graphic form
- Translate figure statements to literature statements, or vice versa
- Translate foreign language to English, or vice versa

3.0 *Interpretation*
- Gives reason (tells why)
- Shows similarities, differences
- Summarizes or concludes from objects of evidence
- Shows cause and effect relationships
- Gives analogy, simile, metaphor
- Performs a directed task or process

4.0 *Application*
- Applies previous learning to new situation
- Applies principle to new situation
- Applies abstract knowledge in a practical situation
- Identifies. selects. and carries out processes

5. 0 *Analysis*

    . Distinguishes facts from opinion

    . Distinguishes facts from hypothesis

    . Distinguishes conclusions from statements which support it

    . Points out unstated assumption

    . Shows interactions or relationship elements

    . Points out particulars to justify conclusions

    . Checks hypotheses with given information

    . Distinguishes relevant from irrelevant statements

    . Detects error in thinking

    . Infers purposes, points of view, thoughts, feelings

    . Recognizes bias or propaganda

6.0 *Synthesis (creativity)*

    . Reorganizes ideas, materials, process

    . Produces unique communication, divergent idea

    . Produces a plan, proposed set of opportunities

    . Designs an apparatus

    . Devises scheme for classifying information

    . Formulates hypothesis, intelligent guess

    . Makes deductions from abstract symbols, propositions

    . Draws inductive generalization from specifications

7.0 *Evaluation*

    . Evaluates something from evidence

    . Evaluates something from criteria

Barrett's Taxonomy of Reading Comprehension (1972)

1. *Literal Recognition or recall*

   Literal skills in this level would include:
   - Stating main ideas, main events, main topics
   - Finding supporting details
   - Arranging sequence of ideas or events
   - Summarizing by restating main ideas
   - Comparing ideas
   - Finding cause and effect relationships
   - Identifying character traits
   - Organizing information into given categories
   - Locating information stated in the selection
   - Determining key words
   - Recalling information stated in the selection

2. *Inference*

   Specific skills may include:
   - Locating implied main ideas
   - Drawing relationships between time, place. setting and characters, ideas expressed in the selection, and events explained in the selection.
   - Determining cause and effect
   - Anticipating outcomes
   - Making inferences
   - Speculating on what happened between events
   - Forming sensory images and impressions
   - Summarizing
   - Generalizing
   - Classifying ideas
   - Comparing and contrasting
   - Identifying character traits
   - Recognizing story problems and plot structure

3. *Evaluation*

Specific skills at this level may include:
. Drawing conclusions
. Judging quality, value, accuracy, truthfulness and style
. Finding information to prove or disprove a statement
. Relating story experiences to personal experiences
. Comparing with a work of a similar nature
. Distinguishing between emotional and reasoned reactions
. Distinguishing non-fiction and fiction
. Distinguishing fact from opinion
. Evaluating aothor's attitude
. Evaluating and reacting to ideas in light of the author's purpose
. Evaluating and solving problems
. Evaluating summaries
. Forming an opinion
. Judging reasonableness and relevancy
. Judging hypothetical from real (*added up to the list*)

4. *Appreciation*

Specific skills at this level may include:
. Noting the responses the author intended the reader to have
. Noting which events develop the plot or theme
. Discussing the use of figurative language
. Locating passages with imagery
. Analysing titles
. Comparing several works by the same author

Taxonomy of Questions (1982)

1. Literal   -   Pupils are asked to recall from memory previously learned facts, concepts, generalisations, and theories.

2. Comprehension - Pupils are asked to express an idea in their own words, make a comparison, or explain or summarise a communication.

3. Application -   Pupils are asked to use their knowledge to solve problems.

4. Analysis   -   Pupils are asked to determine the parts of a problem, solution, or idea and show how they are related.

5. Synthesis   -   Pupils are asked to put ideas or objects together and create something that is unique and new to them.

6. Evaluation   _   Pupils are asked to use criteria to make and justify judgements about something.

7. Affective   -   Pupils respond with a statement of feeling, emotion, value, or opinion without a standard of judgement.

Adapted from Kissock and Iyortsuun (1982)

Escape

During the Second World War Bill Alliston was a gunner in a
Halifax Bomber. In Spring 1944 his plane was shot down and Bill
was injured in the leg. Bill and two other members of the crew,
Maurice Steel and John Collar, parachuted to safety. They landed in
5   Northern France, which was occupied by the Germans. Bill and his
friends set out to find their way back to England. They could only
travel very slowly because of Bill's injured leg, and they travelled by
night to avoid the Germans. During the day they hid in woods and
farm buildings, getting as much rest as they could. In this way they
10 reached Paris.

     At Soissons, east of Paris, they met Maurice and Genevieve
Dupuis. They looked after the airmen, giving them food and hiding
them from the Germans. For five weeks they nursed Bill back to
health. The three men lived in a shed behind the house. Every time
15 the German soldiers came near they had to run away, for they knew
that the Dupuis would be punished and even killed if they were
found out.

     Meanwhile the French Resistance movement was planning an
escape route for the RAF men. They would be taken to Spain and
20 from there it would be much easier for them to get back to England.
So the men set off. They were taken across the Pyrenees, the
mountains which separate France and Spain. In June they reached
Spain.

     Just after the airmen had left Soissons, the Germans raided the
25 Dupuis' house. It was obvious that someone had tipped them off.
They took Maurice Dupuis away with them. They questioned and
tortured him, but he would not tell them where the airmen had
gone or who had helped them. His silence cost him his life, for he
died as a result of the torture. If he had talked many members of
30 the Resistance would have been caught and killed. Even the RAF
escapers might have been stopped.

     To this day Bill Alliston and his wife are grateful to the Dupuis.
They regularly visit Genevieve to show their gratitude to her and to
her dead husband. Bill also helped to start the RAF Escapers'
35 Society. This is a group of men who escaped from France and
Germany during the war. They collect money to help families
whose husbands and fathers helped RAF men to escape during the
war.

Possible questions that can be constructed using the cognitive taxonomy on the text *An escape* (John Seely, 1982)

Levels	Types of Questions
Literal	1. Where did the trio land after their plane was shot down? 2. What was the name of the family that helped the three British airmen?
Comprehension *Translation* *Interpretation*	1. Who were the British alliance in the second world war? 2. What happened to Bill Alliston during the war? 1. What do you understand by the phrase `parachuted to safety'? 2. They `nursed Bill to health'. Can you think of another word to replace `nursed'.
Application	1. Relate Maurice Dupuis experiences to the present situation. Name two countires where such experiences might happen.
Analysis	1. Why were the Dupuis willing to look after Steel, Bill and Collar? 2. What nationality do you think gave the German the tips?
Synthesis	1. What would you have done when the Germans found you out? (Imagine you are Dupuis) 2. What would happen if Bills and his friends did not meet the Dupuis?
Evaluation	1. Do you think Dupuis would have lived had he told the truth? Why? 2. In your opinion was the Dupuis sacrifice worthwhile?
Affective	1. If you were Dupuis, what would you have done? Why? 2. Imagine that you are Mrs. Alliston, how would you show your gratitude to the Dupuis Family?

2

After reading the following text, please construct AT LEAST five (5) relevant comprehension questions based on the text. An attempt to design more than five is appreciated.

(2) *Design AT LEAST three (3) reading comprehension activities*

It was April 9th 1912. A crowd of people stood on the dockside at Southhampton. They were watching the splendid new liner. *Titanic,* steaming out of port. It was its maiden voyage. Suddenly a woman in the crowd pushed forward.

`That ship will sink!' she shouted. Her friends tried to calm her down. The *Titanic* was unsinkable, they said. It was built to the very latest design. Nothing could go wrong. But the woman would not be reassured.

`No!' she cried. `They will all be drowned.' Five days later she was proved right. The *Titanic* hit an iceberg and sank. about 1500 people were killed.

This is an example of precognition, knowing what is going to happen in the future. Precognition is one form of extrasensory perception. Extrasensory perception, or ESP, is the ability to know things without the use of your five senses.

The*re* are other forms of ESP. Some people have the ability to know what you are thinking, without being told. We call this telepathy. Others can `see' things that are actually hidden from them. They may know what is in the darkened room, or be aware of things that are out of sight. This *gift* is known as clairvoyance. Perhaps the most exciting form of ESP is called psychokinesis. It is the ability to change or move objects just by thought. You may have seen or read about people who can, for example, bend spoons simply by the power of thought. That is psychokinesis.

Some of the things said about ESP may seem fantastic. Scientists in America and Russia, however, take ESP very seriously. They believe that it may be useful in any future war between their countries. They are studying it very carefully.

Seely, J. *Oxford Secondary English* (1982). OUP

Possible questions that can be constructed using the cognitive taxonomy

1. Literal   - Where did the *Titanic* sail from its first voyage?

2. Comprehension:
    Translation   - What is the meaning of the word `precognition'
                                 as descibed in the text?
    Interpretation - How is claivoyance different from psychokinesis?

3. Application   - How best could you use ESP for the good of your
                                 own country?

4. Analysis   - Why did no one believe the woman when she said
                                 `That ship will sink'?

5. Synthesis   - If you could have ESP, which one would you choose
                                 and why?

6. Evaluation   - Is the evidence given in the text adequate for an
                                 investigation to take place?

Possible reading comprehension activities that can be designed on the *Titanic* using the cognitive taxonomy.

Activity one - Literal

Instruction: Fill in the appropriate boxes with suitable information obtained from the text.

	The *Titanic* left Southhampton
The number of people killed	
Precognition is	
	Scientists take ESP seriously
	Ability to know what you are thinking without being told
Different types of ESP	

Activity two - Translation (Comprehension)

Instruction: State the meaning of the following words and phrases according to the context as described in the text.

Word/Phrases	Meaning
splendid	
unsinkable	
fantastic	
steaming out of port	
the power of thought	

Activity three - Interpretation (Comprehension)

Instruction: Using the information given in the text. state the different types
of ESP and explain how one differs from onother in terms of
definitions and functions?

ESP	Definition	Function

Activity four - Application

Instruction: Give an example of a situation of how each type of ESP
can function.

ESP	Situation
Precognition	
Telepathy	
Clairvoyance	
Psychokinesis	

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Activity five - Analysis

Instruction: What do you think would have happened if the woman raised the alarm about the tragedy one or two days prior to the maiden voyage?

....

....

....

....

Activity six - Synthesis

Instruction: As someone gifted with ESP (precognition), prior to the incident, draw up a plan to save the *Titanic?*

....

....

....

....

Activity seven - Evaluation

Instruction: a. Outline how this tragedy could have been avoided?

b. Working as an insurance agent. how would you work out your assessment of financial compensation to the families of the victims?

X 3.2: QUILT Lessons   APPENDIX 2

Q U I L T

Questioning and Understanding to Improve Learning and Thinking

A National Diffusion Network Nationally Validated Program

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ogram designed to increase and sustain teacher use of classroom questioning techniques and :dures that produce higher levels of student learning and thinking.

ience: All teachers, K-12, in all content areas.

ription: The QUILT program helps teachers improve the quality of questions they pose to :nts in order to create a more reflective classroom environment. QUILT incorporates research that effective questioning to student learning and thinking. From deciding what's worth asking to iding feedback, QUILT represents a comprehensive approach to enhancing student engagement in ing through questioning. QUILT challenges teachers to rethink the standard approach to teaching earning, in which students are passive learners. Through the QUILT program, teachers help :nts understand how questioning and answering can help them learn, teach students effective tioning strategies and techniques, and help students become active learners. The program, emented over the course of an entire school year, is led by a school team (ideally composed of iers and at least one administrator) trained to facilitate the QUILT program. The program iotes collaborative working patterns in the school and classroom as participating teachers learn igh interactive instruction, discussion with colleagues, reflection on current practice, onstrations, practice with feedback from a colleague, and classroom application.

lence: Results showed that after one year of participation, teachers significantly increased their \ vledge and understanding of effective questioning practices, and significantly increased their use of 'ete questioning behaviors in a classroom setting. Students responded significantly more often at er cognitive levels.

it Educators Say About QUILT: Administrators and teachers in more than 10 states have been lved with the QUILT program since its inception in 1991.

uirements: Teachers--Participate in the three-day Induction Training; implement QUILT .viors in the classroom, which includes teaching effective questioning behaviors to students; attend n collegiums, during which teachers review, plan for classroom application, share, and problem :; and observe and receive feedback from a QUILT partner after each collegium. Local school ers--Attend a one-week training and conduct the three-day induction training for school faculty, seven collegiums, and facilitate teacher efforts to partner and implement QUILT in the classroom.

'ices: Awareness materials available at no cost. In addition to complete training and materials, ram staff offers monitoring of program effectiveness and a newsletter for adopters. Technical tance is available from staff (toll-free telephone). One national training for local teams is held in ngton. KY. the third week of June: additional trainings can be negotiated.

ts: Teacher materials: ($50/teacher); School materials: (S350 includes six videotapes, 149 head transparencies, and other materials): Trainers: (S675/person covers registration costs, iding materials. for a week-long training plus a two-day booster; additional costs are necessary to ort the travel. room and board of local school trainers). Optional costs may include off-campus ing facility. substitute teachers. stipends to school trainers. etc.

ILT Training Activities: QUILT training activities occur throughout the year. For a more

Q U I L T

Questioning and Understanding to Improve Learning and Thinking

g the materials they had on hand, the makers of traditional quilts pieced together patterns of great
ty to form useful objects for their families. Similarly, teachers, using content and good questions,
1elp students piece together information and ideas to form the concepts they need to understand
world.

best teachers back to Socrates have understood the power of good questioning to stimulate
nt learning and thinking. Now researchers have taken a systematic look at classrooms to find out
questioning techniques work best to help students learn, understand, and think about the world.

_T is a yearlong professional development program based on this research to help teachers learn
ise effective questioning techniques.

QUILT staff development program has the following four components, all related to the QUILT
l outlined herein:

Induction Training: Participants learn about effective questioning techniques during a
three-day (18-hour) introductory training period. The training includes a presentation of
knowledge and theory, demonstration of behavior and skills, and many opportunities to apply
and practice good questioning techniques.

Collegiums: Participants meet in periodic forums to learn, share, and interact about particular
questioning behaviors targeted for practice and improvement.

Partnering: Teams of peers participate in ongoing, mutual support activities based in their own
schools.

Individual Study and Analysis: During their involvement in the program, participants will read
independently. practice their skills, and gather data between collegiums.

QUILT Model. which is the basic content for the program, views questioning as a complex,
nic process that is governed by teacher behavior at critical junctures.

The QUILT Model
Teacher Behaviors for Effective Questioning

1: Prepare the Question

Identify instructional purpose
Determine content focus
Select cognitive level
Consider wording and syntax

2: Present the Question

Indicate response format
Ask the question
Select respondent

ge 3: Prompt Student Responses

❏ Pause after asking question
❏ Assist nonrespondent
❏ Pause following student response

ge 4: Process Student Responses

❏ Provide appropriate feedback
❏ Expand and use correct responses
❏ Elicit student reactions and questions

ge 5: Critique the Questioning Episode

❏ Analyze the questions
❏ Map respondent selection
❏ Evaluate student response patterns
❏ Examine teacher and student reactions

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eturn to AEL Home Page

handwritten notes:

- Proof

- Way of proving

APPENDIX 3

Appendix 4.1.1(a)   Academic Courses for the UPM's TESL Programme

4.1.1(i) Semester One

NO	CODE	COURSES	CREDIT hrs.
1.	BBI 301	Introduction to Linguistics	3(3+0)
2.	BBI 345	Fundamental Composition Skills	2(1+1)
3.	BBM 361	Bahasa Melayu Untuk Pengajaran (Malay Lg. for teaching)	2(2+0)
4.	PG 325	Psikologi Pendidikan (Psychology of education)	3(3+0)
5	PJ 271	Pendidikan Jasmani dan Kurikulum (Physical Education and	2(1+)
6...	ETI 210	Curriculum)	3(3+0)
	or	Islamic Civilization	
	ETI 312		3(3+0)
	or	Humans Civilisation	
	ETI 320		3(3+0)
	or	Philosophy of Science and Religion	
	ETI322		3(3+0)
	or	Religion as the basis of ideology and	
	ETI 340	humanity	3(3+0)
		Moral values and ethics	15
		Total	

4.1.1(ii) Semester Two

NO	CODE	COURSES	CREDIT hrs.
1.	BBI 300	English Morphology and Syntax	3(3+0)
2.	BBI 346	Academic Writing Skills	2(1+1)
3.	BBI 364	Trends and Approaches in Language	3(3+0)
4.	BBL 302	Teach	3(3+0)
5.	EPS 230	A Survey of Prose Forms and Poetry	2(2+0)
6.		Malaysian Nationalism	3(3+0)
		Major Elective	
		Total	

4.1.1(iii) Semester Three

NO	CODE	COURSES	CREDIT hrs.
1.	BBI 302	Introduction to Sociolinguistics	3(3+0)
2.	BBI 304	English Phonetics and Phonology	3(3+0)
3.	BBI 354	The Teaching of Reading Skills	3(3+0)
4.	PG 311	Sociology of Education	2(2+0)
5.	PG 354	Research in Education	2(1+1)
6.		Minor	3(3+0)
		Total	16

4.1.1(iv) Semester Four

NO	CODE	COURSES	CREDIT hrs.
1.	BBI 303	Introduction to Psycholinguistics	3(3+0)
2.	BBI 355	The Teaching of Aural-oral Skills	3(3+0)
3.	BBI 353	Computer-Assissted Language Teaching (CALT)	3(2+1)
4.		Electives in Major	3(3+0)
5.		Minor	3(3+0)
		Total	15

4.1.1(v) Semester Five

NO	CODE	COURSES	CREDIT hrs.
1.	BBI 332	Report Writing and Editing	3(3+0)
2.	BBI 352	Pedagogical English Grammar	3(3+0)
3.	BBI 357	Materials Selection and Adaptation	3(3+0)
4.	PG 361	Educational Technology	2(1+1)
5.		Minor	3(3+0)
		Elective in Minor	3(3+0)
		Total	17

4.1.1(vi) Semester Six

NO	CODE	COURSES	CREDIT hrs.
1.	BBI 361	The Teaching of Writing Skills	3(3+0)
2.	BBL 350	The Teaching of Literature in the ESL	3(3+0)
3.	PG 303	c/room	2(2+0)
4.	PG 341	Philosophy of Education	2(2+0)
5.		Curriculum: Theory and Practice	3(3+0)
6.		Minor	3(3+0)
		Electives in Minor	16
		Total	

4.1.1(vii) Semester Seven

NO	CODE	COURSES	CREDIT hrs.
1.	BBI 360	Remedial Language Teaching	3(3+0)
2.	PBI 330	TESL Methodology	2(1+1)
3.	PG 353B	Testing and Evaluation: English	2(2+0)
4.		Language	3(3+0)
5.		Minor	2(1+1)
6.		Method of teaching Minor	3(3+0)
		Electives in Major	15
		Total	

4.1.1(viii) Semester Eight

NO	CODE	COURSES	CREDIT hrs.
1.	BBI 363	Project Paper	3(0+3)
2.		Electives (Teacher-training)	2(2+0)
3.		Electives (Teacher-training)	2(2+0)
4.	PG 370	Practical teaching	5(0+5)
		Jumlah	

APPENDIX 4

APPENDIX 4.1.1(b): UPM's TESL Syllabus Specification

KERTAS BIL. 98.4

19 April 1994

CADANGAN KURIKULUM BARU PROGRAM
BACELOR PENDIDIKAN
(PENGAJARAN BAHASA INGGERIS
SEBAGAI BAHASA KEDUA)

BACHELOR OF EDUCATION
(TESL)

~~KURSUS ELEKTIF DIPLOMA PENDIDIKAN~~

(TESL)

BBI 352	Pedagogical English Grammar	3
BBI 353	Computer-Assisted Language Teaching (CALT)	3
BBI 354	The Teaching of Reading Skills	3
BBI 355	The Teaching of Aural-Oral Skills	3
BBI 357	Materials Selection and Adaptation	3
BBI 360	Remedial Language Teaching	3
BBI 361	The Teaching of Writing Skills	3
BBI 364	Trends and Approaches in Language Teaching	3
BBL 350	The Teaching of Literature in the ESL Classroom	3

KURSUS   :   THE TEACHING OF READING SKILLS
                (Pengajaran Kemahiran Membaca)

<URSUS   :   BBI 354

IT   :   3 (3 + 0)

'ARAT   :   Dengan persetujuan pengajar

\JAR   :   Fauziah Hassan

:TIF   :   At the end of this course, students are able
                to   understand   the   various   skills   and
                components related to reading as a skill and
                be aware of the principles and methods of
                effective and efficient reading.

SIS   :   The processes of reading; symbols and sounds;
                reading   cues; developmental   reading   stages;
                speech and comprehension (Reading Efficiency
                Rate) remedial practice; skimming; scanning;
                intensive   reading;   extensive   reading;
                simplified, adapted, and abridged materials;
                selection of reading materials; diagnosing
                students levels, needs and interests; and
                enhancing vocabulary development.

                (Proses   membaca; simbol dan   bunyi;   kiu
                membaca; tahap perkembangan membaca; pembacaan
                nyaring   dan   pemahaman   (kadar   kecekapan
                membaca), praktik pemulihan, bacaan seimbas,
                bacaan selayang, pembacaan intensif, pembacaan
                ekstensif,   pemudahan,   penyesuaian,   dan
                penyingkatan bahan, pemilihan bahan bacaan,
                mendiagnos tahap bacaan pelajar, keperluan dan
                minat, memupuk perkembangan kosa kata.)

IGAN   :   1.   Language and reading

                2.   The abilities and skills involved in the
                      process of learning to read

                3.   Reading readiness and assessing readiness
                      and progress

                4.   Methods and innovations, basic principles
                      and major approaches to teaching reading

                5.   Speed and comprehension

                6.   Reading   difficulties   and   remedial
                      practice

                7.   Reading standards

HLAIAN	:	Assignment	40%
		Mid-semester test	20%
		Final Examination	40%

JUKAN : Johnson, Terry. (1973). <u>Reading: Teaching
and Learning</u>. London: Macmillan.

Kerber, James. (1975). <u>The Tasks of Teaching
Reading</u>. Belmont: Wadsworth Publishing.

Lewis, Norman. (1958). <u>How to Read Better
and Faster</u>. New York: Harper and Row.

Southgate, Vera. (1972). <u>Beginning Reading</u>.
London: University of London Press.

Walker, Christopher. (1975). <u>Teaching Pre-
reading Skills</u>. London: Ward   Lock
Educational.

KURSUS   :   MATERIALS SELECTION AND ADAPTATION
                 (Pemilihan dan Penyesuaian Bahan)

JRSUS   :   BBI 357

T   :   3 (3 + 0)

ARAT   :   Dengan persetujuan pengajar

JAR   :   Dr. Chan Swee Heng

TIF   :   At the end of this course, students are able
                 to understand the principles and criteria used
                 in materials selection and adaptation.

SIS   :   A survey of the development in materials for
                 ESL teaching with a focus on the textbook;
                 principles and criteria for analysis and
                 evaluation of published materials; application
                 of the criteria through practical workshop
                 sessions.

                 (Tinjauan terhadap perkembangan bahan untuk
                 pengajaran ESL yang berfokuskan buku teks;
                 prinsip dan kriteria untuk menganalisis dan
                 menilai bahan bercetak, penerapan kriteria
                 melalui sesi bengkel amali.)

JNGAN   :   1.   Overview: Historical perspective

                 2.   Macro-analysis vs. micro-analysis

                      -   general principles and criteria for
                          analysis and evaluation of published
                          materials.
                      -   a case study in macro-analysis

                 3.   Workshop session: Adaptation

                 4.   Workshop session: Production

LAIAN   :   Assignment   40%
                 Mid-semester test   20%
                 Final Examination   40%

KAN   :   Abbott, G., and Wingard P. (1981). The
                      Teaching of English as a International
                      Language. New York: Collins.

                 Bell, R. (1976). Sociolinguistics. London:
                      Billing and Sons.

Brumfit, C, and Johnson. (1979). The Communicative Approach to Language Teaching. Oxford: Oxford University Press.

Celce-Murcia, M., and McIntosh. (Ed.). (1969). Teaching English as a Second or Foreign Language. New York: Newbury House Publishers.

Cunningsworth, A. (1984). Evaluating and Selecting EFL Teaching. New York: Newbury House Publishers.

Dittman, Norbert. (1976). Sociolinguistics. London: Arnold Press.

Fishman, Joshua. (1972). Advances in the Sociology of Language. Vol. I and Vol. II. The Hague: Moulton Press.

Hudson, R. (1980). Sociolinguistics. London: Cambridge University Press.

Long, M., and Richards, J. (1987). Methodology in TESOL. Singapore: Harper and Row.

Price, J., and J. Holmes. (1972). Sociolinguistics. United Kingdom: Hazel Watson and Viney.

Rivers, W. (Ed.). (1987). Interactive Language Teaching. Cambridge: Cambridge University Press.

Trudgill, Peter. (1982). Sociolinguistics: An Introduction. London: Edward Arnold Press.

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KURSUS	:	PEDAGOGICAL ENGLISH GRAMMAR (Tatabahasa Pedagogi Bahasa Inggeris)
URSUS	:	BBI 352
T	:	3 (3 + 0)
ARAT	:	Dengan persetujuan pengajar
JAR	:	Che An Abdul Ghani
TIF	:	At the end of this course, students are able to understand the basic structures of English and to teach these effectively.
SIS	:	An overview of the English language usage; exposure to the rudiments of the English language; a detailed account of the lower secondary Malaysian English language syllabus and how these units can be taught effectively. (Tinjauan terhadap penggunaan bahasa Inggeris; pendedahan terhadap prinsip asas bahasa Inggeris, penelitian terhadap silibus Bahasa Inggeris Sekolah Menengah Rendah di Malaysia; cara unit-unit ini dapat diajarkan secara.)
UNGAN	:	1. Overview of grammar. The sentence and its parts. 2. The verb phrases. 3. The noun phrases. 4. Adjectives and adverbs. 5. Prepositions and prepositional phrases. 6. Coordination, sentence connectors and complex sentences.
LAIAN	:	Assignment 40% Mid-semester test 20% Final Examination 40%
JKAN	:	Kolin, Martha. (1986). _Understanding English Grammar_. London: MacMillan. Leech, and Svartvik. (1975). _A Communicative Grammar of English_. London: Longman. Close, R.A. (1975). _English as a Foreign Language_. London: Allen & Unwin.

Halliday, M.A.K. (1970). Learning How to Mean. London: Edward Arnold.

Hart, K., and Heim, A. (1962). Sentences, Paragraphs, and Essays. New York: Little Brown.

MA KURSUS	:	COMPUTER-ASSISTED LANGUAGE TEACHING (Pengajaran Bahasa Berbantu - Komputer)
D KURSUS	:	BBI 353
EDIT	:	3 (2 + 1)
ASYARAT	:	Dengan persetujuan pengajar
NGAJAR	:	Dr. Hjh. Jamalleah Hj. Ismail
JEKTIF	:	At the end of this course, students are able to introduce simple programming in BASIC and aware of the potential and limitations of the micro-computer for teaching English.
NOPSIS	:	The role of the micro-computer in teaching and learning languages: its advantages and limitations; selecting and adapting programmes suitable for teaching English in Malaysia; using an authoring system; writing simple programmes in BASIC; the practical implications of introducing and maintaining micro-computers; the choice of micro-computer and other hardware issues.

(Peranan mikrokomputer dalam pengajaran dan pembelajaran bahasa, kebaikan dan batasan penggunaannya; pemilihan dan penyesuaian program yang sesuai untuk pengajaran Bahasa Inggeris di Malaysa; penggunaan sistem pengarangan; menulis program mudah dalam BASIC; implikasi amali terhadap pengenalan dan pengekalan mikrokomputer, pemilihan mikrokomputer, dan isu-isu perkakasan yang lain.)

DUNGAN	:	1. Introduction to computer hardware: Description and function.
		2. Introduction to software and courseware; Dos, Windows, disks and program packages.
		3. The role of the micro-computer in teaching and learning languages: its advantages and limitations.
		4. Selecting and adapting programmes suitable for teaching English in Malaysia.
		5. Word processing using WordStar or Word-Perfect.
		6. Spread sheet such as, Lotus and Quattro.

MCCE 1994. <u>EDUCOMP '94 PROCEEDINGS. Visions</u>
<u>for Teaching and Learning</u> USM.

MTK, KPM 1994. Sistem ComIL. (Manual for
programming). KL: KPM.

IA KURSUS	:	THE TEACHING OF AURAL-ORAL SKILLS (Pengajaran Kemahiran Lisan)
) KURSUS	:	BBI 355
:DIT	:	3 (3 + 0)
iSYARAT	:	Dengan persetujuan pengajar.
IGAJAR	:	Sh. Zainab Syed Abd. Rahman
'EKTIF	:	At the end of this course, students are able to demonstrate the importance of teaching listening, as opposed to simply testing it. To be aware of the different types of skill involved in different types of listening, and to experiment with a variety of techniques appropriate for the teaching of listening.
IOPSIS	:	The different types of listening; the different skills involved in listening; different techniques for teaching listening; ways of teaching speaking; the relationship between speech and the other language skills; different kinds of speaking; experimentation with different kinds of speaking exercise, and production of materials suitable for teaching speaking. (Pelbagai ragam mendengar, pelbagai kemahiran dalam mendengar; pelbagai teknik untuk pengajaran mendengar, cara mengajar bertutur; hubungkait antara bertutur dengan kemahiran bahasa yang lain; pelbagai ragam bertutur; pengujikajian dengan latihan pelbagai ragam bertutur; dan pembinaan bahan yang sesuai untuk pengajaran bertutur.)
DUNGAN	:	1. Approaches to teaching speaking in the TESL classroom. The relationship between effective listening and the accurate production of speech sounds, and stress and intonation patterns.
		2. Teaching different kinds of speaking: designed to improve different aspects of speech including accuracy, fluency, comprehensibility and appropriacy.
		3. Teaching students to make short speeches in English.
		4. Laboratory exercise to demonstrate the range of speaking activities available.

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5.   Preparation of speaking activities suit-
     able for the ESL classroom.

6.   Approaches to teaching listening in the
     ESL classroom. The differences between
     teaching listening and simply testing
     listening. The dangers of neglecting to
     teaching listening in a systematic way.

7.   Teaching different types of listening
     including intensive and extensive listen-
     ing.

_AIAN   :   Assignment   40%
             Mid-semester test   20%
             Final Examination   40%

<AN   :   Anderson, Anne and Tony Lynch. 1991.
             Listening. Oxford: Oxford University
             Press.

             Brown, Gillian and George Yule. 1988.
             Teaching the Spoken Language. Cambridge:
             Cambridge University press.

             Byrne, Donn. 1990. Teaching Oral English.
             London: Longman Group Limited.

             Johnson, Keith and Keith Morrow (eds.). 1992.
             Communication in the Classroom:
             Applications and Methods for a
             Communicative Approach. Essex: Longman
             Group UK Limited.

             Legutke, Michael and Howard Thomas. 1991.
             Process and Experience in the Language
             Classroom. New York: Longman Group UK
             Limited.

             Long, M.H. and Jack C. Richards (eds.). 1987.
             Methodology in Tesol. New York: Newbury
             House Publishers.

             Rixon, Shelagh. 1991. Developing Listening
             Skills. Hong Kong: Modern English
             Publications

             Rost, Michael. 1991. Listening in Language
             Learning. New York: Longman Group UK
             Limited.

             Underwood, Mary, 1993. Teaching Listening.
             London: Longman Group Limited.

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Ur, Penny. 1984. _Teaching Listening Comprehension_. Cambridge: Cambridge University Press.

KURSUS	:	THE TEACHING OF WRITING SKILLS
KURSUS	:	BBI 361
IT	:	3 (3 + 0)
YARAT	:	Dengan persetujuan pengajar
JAR	:	Theresa Heng Sooi Chew
TIF	:	At the end of this course, students are able to understand the different approaches to the teaching of writing skills in ELT, particularly in ESL, to prepare teacher-trainees for the task of teaching writing in schools and to train teacher-trainees to develop and prepare writing assignments for the ESL.
SIS	:	Approaches to teaching writing in the ESL classroom; techniques in teaching writing; teaching different types of writing; investigation into the processes involved in the task of writing; preparing writing assignments for the ESL classroom. (Pendekatan pengajaran menulis dalam kelas ESL; teknik pengajaran menulis; pengajaran pelbagai jenis penulisan; mengkaji proses yang terlibat dalam tugasan menulis; meyediakan tugasan menulis untuk kelas ESL.)
NGAN	:	1. The status of writing in the communicative syllabus. 2. Background survey: traditional and current approaches to the teaching of writing; British and American methodology in the teaching of writing. 3. Teaching different types of writing, with emphasis on the teaching of practical/institutional writing. 4. The process of writing; Teacher control of the process of writing. 5. Preparation of writing assignments for the communicative syllabus.
IAN	:	Assignment 40% Mid-semester test 20% Final Examination 40%

UJUKAN   :   Davis, A., and H.G. Widdowson. (1974).
                 _Reading and Writing in the Edinburgh
                 Course in Applied Linguistics_, Vol. 3,
                 edited by J.P.B. Allen and S. Pit Corder,
                 London: OUP.

                 Widdowson, H. (1978). _Teaching Language and
                 Communication_. London: OUP.

                 Hill, C. (1978). _Writing for a Purpose_
                 London: OUP.

                 Laurence, Mary. (1978). _Writing as a Thinking
                 Process_. Ann Arbor, Michigan: University
                 of Michigan Press.

                 White, Ronald. (1980). _Teaching Written
                 English_. London: Allen and Unwin.

KURSUS	:	TRENDS AND APPROALCHES IN LANGUAGE TEACHING (Aliran dan Pendekatan dalam Pengajaran Bahasa).
KURSUS	:	BBI 364
IT	:	3 (3 + 0)
YARAT	:	Dengan persetujuan pengajar
AJAR	:	Arshad Abd. Samad
KTIF	:	At the end of this course, students are able to understand the basic principles of major trends and approaches in ELT, discuss their merits and shortcomings, and explain the relationship between the development of ELT and relevant fields in linguistics and education.
PSIS	:	An overview of the major trends and approaches in ELT; their historical development and underlying principles; their major emphases as well as representative kinds of activities and techniques.

(Kajian umum terhadap tren dan pendekatan utama dalam pengajaran Bahasa Inggeris; sejarah perkembangannya; prinsip-prinsip dasarnya; tumpuan-tumpuan utamanya termasuk jenis-jenis aktiviti dan teknik yang representatif).

JNGAN	:	1.	The historical development of ELt.
		2.	Overview of the contribution of findings from linguistic sciences to ELt.
		3.	Relationship between the various fields of education and ELT.
		4.	Survey of major trends in ELT.
		5.	Theoretical principles behind major approaches in ELt.
		6.	Emphases of current approaches in the teaching of the different skills in ELT.
		7.	Roles of teachers and learners in ELT.
		8.	Communicative competence.

ENILAIAN   :   Assignment   40%
                    Mid-semester test   20%
                    Final Examination   40%

UJUKAN   :   Bowen, H., Madsen, H., and Hilferty, A.
                    (1985). <u>TESOL Techniques and Procedures</u>.
                    Massachusetts: Newbury House.

                    Brown, H. (1980). <u>Principles of Language
                    Learning and Teaching</u>. New Jersey:
                    Prentice Hall.

                    Brumfit, C. (1984). <u>Communicative Methodology
                    in Language Teaching</u>. Cambridge:
                    Cambridge University Press.

                    Finnochiaro, M. (1986). <u>English as a
                    Second/Foreign Language</u>. 4th. ed. New
                    Jersey: Prentice Hall.

                    Howatt, A. (1984). <u>A History of English
                    Language Teaching</u>. Oxford: Oxford
                    University Press.

                    Larsen-Freeman, D. (1984). <u>Techniques and
                    Principles in Language Teaching</u>. Oxford:
                    Oxford University Press.

                    Littlewood, W. (1981). <u>Communicative Language
                    Teaching</u>. Cambridge: Cambridge
                    University Press.

                    Richards, J., and Rodgers, T. (1986).
                    <u>Approaches to Methods in Language
                    Teaching: A description and Analysis</u>.
                    Oxford: Oxford University Press.

                    Scarcella, R. and Oxford R. (1992). <u>The
                    Tapestry of Language Learning</u>.
                    Massachusetts: Heinle and Heinle.

MA KURSUS   :   THE   TEACHING OF LITERATURE IN   THE   ESL
                    CLASSROOM
                    (Pengajaran Kesusasteraan dalam Kelas Bahasa
                    Inggeris Sebagai Bahasa Kedua)

D KURSUS   :   BBL 350

EDIT   :   3 (3 + 0)

ASYARAT   :   Dengan persetujuan pengajar

NGAJAR   :   Dr. Rosli Talif

JEKTIF   :   At the end of this course, students are able
                    to understand the theoretical and practical
                    concepts   involved   in   the   teaching   of
                    literature as language learning enhancement,
                    and to understand how these can be expanded
                    into the teaching of literature as a subject.

VOPSIS   :   Rationale for using literature in the ESL
                    classroom;   classroom   procedures;   the
                    literature curriculum; issues in the testing
                    of literature; theories of critical reading;
                    extention of theories into practical classroom
                    applications.

                    (Rasional penggunaan kesusasteraan dalam kelas
                    pengajaran Bahasa Inggeris; prosedur dalam
                    bilik darjah; kurikulum kesusasteraan; isu-isu
                    dalam pengujian kesusasteraan; teori bacaan
                    secara kritik; mempraktikkan teori dalam   ͷ
                    situasi sebenar di bilik darjah).

NDUNGAN   :   1.   The place of literature in the   ESL
                         classroom

                    2.   Literature and experience

                    3.   Approaches to texts

                    4.   Language-based approaches

                    5.   Activities for the advanced class

                    6.   The literature curriculum

                    7.   Issues in the testing of literature

                    8.   Theories of critical reading

                    9.   Applications in the classroom

ENILAIAN   :   Assignment   40%
                 Mid-semester test   20%
                 Final Examination   40%

UJUKAN   :   Brunfit, C., and Carter, R. (1986). (Eds.).
                     Literature   and   Language   Teaching.
                     London: Oxford University Press.

                 Carter, R., Walker, R., and Brumfit,   C.
                     (Eds.).   (1989).   Literature and   the
                     Language   Learner: Methodological
                     Approaches.   London: Macmillan   and
                     British Council.

                 Carter, R., and Long, M. (1991). Teaching
                     Literature. New York: Longman.

                 Collie, J., and Slater, S. (1987). Literature
                     in the Language. Cambridge: Cambridge
                     University Press.

                 Durant, A., and Fabb, N. (1990). Literary
                     Studies in Action. London: Routledge.

                 Maley, A., and Duff, A. (1989).   The Inward
                     Ear: Poetry in the Language Classroom.
                     Cambridge: Cambridge University Press.

                 McRae, J. (1991). Literature With A Small
                     :1:. London: Macmillan.

                 McRae, J., and Boardman, R. (1984).   Reading
                     Between the lines: Integrated Language
                     and Literature Activities.   Ca,bridge:
                     Cambridge University Press.

                 Sage, H. (1987). Incorporating Literature In
                     ESL   Instruction. New Jersey: Prentice
                     Hall.

                 Short, M. (Ed.). (1988). Reading, Analysing
                     and   Teaching   Literature.   London:
                     Longman.

\MA KURSUS	:	REMEDIAL LANGUAGE TEACHING
)D KURSUS	:	BBI 360
?EDIT	:	3 (3 + 0)
?ASYARAT	:	Dengan persetujuan pengajar
NGAJAR	:	Dr. Jamali Ismail
JEKTIF	:	At the end of this course, students are aware of new developments in remedial language teaching, the principles and strategies involved, and able to develop relevant materials for remedial language teaching.
VOPSIS	:	Problems of language learners in Malaysia; L1 interference in phonology, syntax, and lexicon of L2; strategies of reteaching; materials preparation and psychological implications.
		(Masalah pelajar bahasa di Malaysia; Gangguan bahasa pertama dalam fonologi; sintaksis, dan leksikan bahasa kedua; strategi dan pengajaran ulangan; penyediaan bahasa dan implikasi psikologi.)

DUNGAN   :

1.   Introduction: Remedial education, RLT, and the slow learner

2.   Slow learners as individuals

3.   Diagnosis

4.   The process of language learning

5.   Understanding the background of language disabilities

6.   Strategies of communication

7.   About language, language learning, language teaching and the teaching of English in the context of RLT

8.   Error analysis

9.   Contrastive analysis

LAIAN	:*	Assignment	40%
		Mid-semester test	20%
		Final Examination	40%

UJUKAN   :   Bell, Roger. (1981). <u>Introduction To Applied Linguistics</u>. London: B.T. Batsford.

Beveridge, Michael, and Gina Conti-Ramsden. (1987). <u>Children With Language Disabilities</u>. Milton Keynes: Open University Press.

Bines, Hazel. (1986). <u>Redefining Remedial Education</u>. London: Croom Helm.

Gower, Roger, and Steve Walters. (1983). <u>Teaching Practice Handbook</u>. London: Heinemann Educational Books.

Griffin, Diane. (1978). <u>Slow Learners: A Break In The Circle</u>. London: The Woburn Press.

Hamer, Jeremy. (1983). <u>The Practice of English Language Teaching</u>. London: Longman.

Richards, Jack. (Ed.). (1974). <u>Error Analysis: Perspectives on Second Language Acquisition</u>. London: Longman.

Weber, Kenneth J. (1978). <u>Yes, They Can: A Practical Guide for Teaching The Slow Learner</u>. Molton Keynes: The open University Press.

Williams, Alec. (1970). <u>Basic Subjects for the Slow Learner</u>. London: Methuen Educational Ltd.

APPENDIX 5.5.2: Taxonomy of Comprehension Processes (Irwin, 1991)

Comprehension processes

Tasks Assessment Markers

1. Microprocesses (non-inferential)

Definition	Examples of RCA tasks - microprocesses
displays the ability when a reader understands and selectively recalls ideas in individual sentences by deriving meaning from the individual idea units and decides which of these ideas to remember. It consists of two sub-processes; namely, **chunking** and **selection. Chunking** involves the ability to group words into meaningful syntactic units. **Selection** is the process whereby a reader selects what details from an information to retain in his memories while reading sentences from a text.	1. Chunk or group words from the text to form meaningful syntactic units to help you to remember the main ideas (chunking) e.g. *the soldiers/referred/the matter/ to their superior officer/.* 2. Identification of main ideas from a text. **(Selection)** 3. Arrange the main ideas in an appropriate order. **(Selection)**

2. Integrative processes (non-inferential)

Definition	Examples of tasks - integrative processes
It is defined as the process involved in understanding relationships between clauses and sentences. It consists of three main types are; understanding anaphora, understanding connective relationships, and making slot-filling inferrences. Anaphoric relations are associations between words in which one word or phraseis being used to replace another e.g. *'John followed Sally'* can be replaced by *'He folowed Sally'*.Understanding connectives relates two events to each other e.g. *'The blossom opened because the sun was shining'*. **Slot-filling inferences** are inferences integrates important missing aspects of the given situation using aspects such *agents (as in, Who did it?), Objects (as in, To whom or what was done?), Instruments (as in, What was used to do it?), Experiencer (as in, Who experienced the feelings or thoughts?), Source (as in, Where did it (or they) come from?), and Goal (as in, What was the result or goal?)*	1. Identifying or filling the blanks with pronouns or referents; writing phrases; identifying referents for pronouns, or answering questions related to anaphoric inferences. **(Understanding anaphora)** 2. Determining several kinds of anaphoric relations in a reading text. **(Understanding anaphora)** 3. Identifying connectives that link two or more sentences together in a given text. **(Understanding connectives - UC)** 4. Combining two or more sentences together using appropriate connectives. **(UC)** 5. Marking/identifying intersentential connections from a text and stating whether they are implicit or explicit. **(UC)** 6. Combining two or more sentences using approp -riate slot-filling inferences that relate the sentences together using appropriate aspects.

3. Macroprocesses (non-inferential)

Definition

It describes how ideas are connected and retained more
effectively in memory when they are organized and
summarized. **Summarization** of ideas is necessary where
unnecessary details are deleted to enhance a better under
-standing and retention. **Organization** of the ideas according
to the author's is another important aspect that assists under
-standing and retention. Macroprocesses does not relate
directly to 'what has been understood' rather it helps in
'how ideas can be understood'. As it stimulates the process
rather that the product; it is labelled as literal rather than
inferential.

Note 1:
Brown & Day's (1983) summary microrules
1. Deletion - redundant information is deleted

2. Superordination - More general terms are substituted
for groups of specifics.

3. Selection - General statements are selected to retain

(macroselection)

4. Invention - Explicit topic statements are invented
when they are not stated.

Examples of tasks - macroprocesses

1. Students to detail the text read using graphic
organizer;(*Organizing*)

2. RC tasks constructed using Morrow's
guidelines; (*Organizing*)

    i. Who was the story about?

    ii. Where did the story happen?

    iii. What was the main character's problem?

    iv. How did he try to solve the problem?

    v. How did the story end?

3. Students are asked to summarize a passage
based on important ideas. Brown and Day's
microrules (1983) might be used;
4. Students are asked to identify/select
important ideas from a reading text/to rank
important ideas/to used the main ideas to
summarize a text/to delete unnecessary
information/to substitue more general terms
to replace the specifics/to invent explicit topic
sentences when they are not stated - before
a summary of the passage is prepared.

Note 2:

Organizing: Stories/texts are normally organized under
certain sub-headings; *setting, initiating event, internal event,
internal response, attempt, consequence, reaction* (Stein,1979)
or some may use sub-headings like *spatial description,
temporal sequence, explanation, comparison-contrast,
definition-example* (Irwin and Baker, 1989)

Summarizing: Students summarize text using
main ideas portrayed in the text. They may follow
the summary microrules as suggested by Brown
& Day (1983) - refer note 1.

Note 3: Example of graphic organizer

(Source: Irwin,1991)
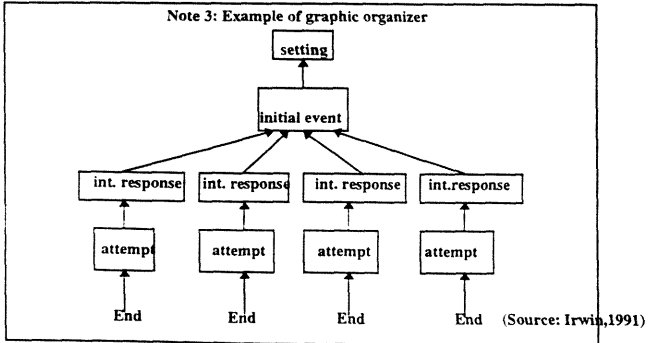
4. Metacognitive processes (non-inferential)

Definition

Metacognitive processes are strategies used by a reader
in order to monitor his own cognitive processes in his
effort to understand an information. This might involve
the process of selecting, evaluating or regulating one's
strategies to control comprehension and long-term recall
in order to benefit from an information. Basically it
involves comprehension monitoring, study skills, and
strategy adjustment as required by the reader's goal

Examples of RC tasks - metacognitive

1. What study skills/comprehension strategies you
might use in order to understand the paragraph/
section/page/of the text?

2. What comprehension strategies are used in your
attempt to understand the poem?

3. What sort of comprehension strategies are requ-
ired before you are able to make inferences or elabo-
rations of the text?

4. Students are asked to explicitly state certain
strategies used in their effort to understand certain
paragraphs of the text.

5. How would you remedy comprehension break-
down of the text you are reading?

6. Other activities might include explicit
instructions asking the students to preview the
material/ to focus their attention on key concepts/
to rehearse the materials at intervals, preferably
in their own words and/ to review the materials
as a whole after reading apart from taking notes
and reflecting on the material during and after
reading.

5. Elaborative processes (inferential)

Definition

Elaborations(Irwin, 1991) or inferential skills can be defined as making inferences not necessarily
intended by the author. Elaborations or inferences are those processes which are not necessary for
microprocessing, integrative processing, or macroprocessing. When the previous three help at getting
to the process of meaning construction, elaborative processes describe the part of meaning that a reader is
constructing. The most typical types of elaborations according to Irwin are (1) making predictions,
(2) integrating the information with prior knowledge, (3) forming mental image, (4) responding affectively,
and (5) responding with higher-level thinking process.

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Making predictions Collins and Smith (1980) define predictions as 'hypothesis about what will happen' . It is suggested that good readers often read with various event and text structure expectations. These predictions may help these readers to monitor their comprehension and direct their attention to important information.	**Examples of RC tasks - making predictions** 1. Students are asked to make predictions of the outcome of an event, problems, statements, debates, etc. extracted from a reading text. 2. Tasks that ask questions like; What do you think this ... (chapter, unit, page) is going to be about? and what makes you think so?(pre-reading question) Did you find evidence that support your prediction? (during reading question) What was it? What do you think will happen next?(post-reading question).
Prior-knowledge elaborations All elaborations (inferences) require prior knowledge. Elaborations are the ability to relate comprehension skills to reader's previous experiences. Reder (1978) points out, 'How much one elaborates depends upon previous experience with the material, inherent interest in the subject matter, understanding of the text, time alloted to read it, concentration and general tendency to elaborate.	**Examples of RC tasks - prior knowledge** 1. How would you interpret the events related in in the story based on your own experiences? 2. Students are asked to map what they already know using the key concepts extracted from the reading text. 3. Students are asked to debate the issues being discussed as to whether they agree or disagree with them.
Semantic mapping Semantic mapping or mental imagery is the reader's ability to form mental images over the information read. Paivio (1986) states that 'forming mental images as we read does seem to increase the amount we understand and recall'.	**Examples of RC tasks - semantic mapping** 1. Students are asked to write elaborative descriptions of the events/ issues etc. being discussed in the text. 2. Students are asked to describe sounds, smells that are brought to mind during reading. 3. Students are asked to draw pictures to illustrate the materials and so on.

Source: Irwin (1991)

Affective responses Affective responses describes the ability of the reader to relate with an emotional response to the text read. Smith and Barrett (1979) who also include affective responses as part of comprehension where in the category of 'appreciation' such factors like (1) emotional responses to plot or theme (2) identification with characters and incidents. and (3) reactions to the author's use of language are included.	**Examples of RC tasks - affective responses** 1. Students are asked to relate their emotional responses to plot or theme of the text discussed. (*Emotional response to plot or theme*) 2. Students are asked to identify themselves with the character(s) mentioned in the text. (*identification with characters*)

Examples of RC tasks - continued

1. Students are asked to compare words or
phrases that have the same denotations but
different connotations. They can discuss
author's word choices and suggest other
words that would change the story because
of their connotations. (*Connotations and
figurative language*)

Note 3:

Examples of types of figurative language

DEFINITION	EXAMPLE
Simile: two similar things said to be alike; uses words 'like' or 'as'	My heart sank like a stone.
Metaphor: same as simile but words 'like' and 'as' are not used.	All the world's a stage.
Personification: representing a thing or animal as a person.	His money said it all

Source: Irwin (1991)

Higher-level thinking responses

This sub-process of elaborative processes relates
reading to reasoning. . Engagement in reasoning
involves higher-level thinking processes. For instance,
transfering information to apply in new situations,
analysing the reasoning used by the author, integrating
ideas into a higher-level thinking responses that can be
a part of a reading act. Bloom (1956) originally called
these processes 'application', 'analysis', 'synthesis'
and 'evaluation' respectively. These processes are
also found in Sanders (1966).

Application is the process of deciding what information
to apply in a new situation and applying it appropriately.

Examples of RC tasks - application

1. Using the idea from a reading text,
students are asked to apply their own
information and later predict how someone
is going to react on certain problems
he/she is facing based on the reader's
interpretation. etc.

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Analysis can be seen as the process of breaking the information into its component parts and assessing one's own thought processes in relation to those parts.	**Examples of RC tasks - analysis** 1. Students are asked to make judgements on the authenticity of a source of information. 2. Students are asked to give their views on whether the author's premises have led to the stated conclusion(s) or not. 3. Students are asked to distinguish between fact and opinion. 4. Students are asked to analyse a propaganda. 5. Students are asked to detect falacies of reasoning. etc.
Synthesis is the process of combining separate pieces of knowledge that is new, at least new to the person doing the thinking.	**Examples of RC tasks - synthesis** 1. Students are asked to write/plan a political action after reading about a political issue. 2. They are asked to write a solution to a problem mentioned in a reading text. 3. They are asked to apply the techniques used in achieving something mentioned in the text in another related situation. etc.
Evaluation involves first deciding on the evaluation criteria and then evaluating the ideas as good or bad right or wrong, just or unjust, and so on, on the basis of those criteria.	**Examples of RC tasks - evaluation** 1. Students are asked to evaluate certain issues discussed in an information and to state their ratings of the issues based on certain criteria of assessment. 2. Based on human basic rights, how do you rate the social practice mentioned in the text? 3. Based on your cultural point of view, what do you think of the social life mentioned in the text? etc.

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The above quotation which forms the basis of how the tasks are analysed is hereby

elaborated and explained as to how each process is used in the analysis.

Comprehension processes

Basic Comprehension Processes

١٠ Microprocesses

٤٠ Metacognitive processes

Comprehension monitoring

Adjusting strategies

Study skills

Chunking

Microselection

٢٠ Integrative processes

٣٠ Macroprocess

٥٠ Elaborative processes

Understanding anaphora

Slot-filling inferences

Understanding connectives

٥٠٤ Making predictions

٥٠٣ Mental imagery

٥٠٤ Affective responses

٥٠٢ Prior-knowledge

٥٠٥٠ Higher-level thinking processes

Organizing (story grammar knowledge)

Summarizing (Understanding organizational patterns in expository materials)

٥٠١

٥٠٥٠١ Application

٧

٥٠٥٠٢ Analysis

٥٠٨

٥٠٥٠٣ Synthesis

٥٠٩

٥٠٥٠٤ Evaluation

Source: Irwin, (1991)

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APPENDIX 6

Appendix 8.3.7 Text Books: Levels of RC questions and tasks

Book 1 - *The New Integrated National Curriculum for Secondary Schools* - English
Form 4

Passage 1 - *How do I fix it - A practical women*				
NOS.	QUESTIONS	TAX	TASKS	TAX
1	What is Riaz's complaint? (FP)	1	Answer these questions. (Questions 1 - 5 as listed) (FP)	1,2,3
2	Why didn't Riaz's mother want to call the plumber? (FP)	2	There are many kinds of repairs which need to be done in a house. How many can you think of? Works in groups of five. Divide the kinds of repairs needed into two categories: one, which needs expert help and the other, which you can do by yourself.	3, 4
3	What did Riaz'z father plan to do? (FP)	2	Write down the home repairs that you know of. For example, replacing a broken window pane. Exchange notes with other groups on how simple repairs can be done.	3
4	How will he silence the leaky tap temporarily? (IP)	3	Use the following words to construct your own sentences.	2
5	Why didn't he repair the tap permanently? (IP)	4	Complete these instructions on how to change a plug. Use suitable connectors	2
6	Who does the repairs in your house? (IP)	2	Complete these sentences using must and mustn't.	2
7	What are the tools that you have in your house? Name the uses of the following tools: (IP)	2	Work in pairs. Try to explain to your partner how a leaky tap is repaired. (IP)	3
8	Name some common reasons why a car refuses to start? (IP)	2	Work in pairs. Look at these pictures which show how to repair cracks in walls. Take turns to explain how the cracks are repaired. (IP)	2
9	Give your opinion of Paulus' behaviour towards Mariana.	6	Discuss the following topics in groups. 1 It is often said that prevention is better than cure. Discuss what preventive measures can be taken in and around the house to keep things in good condition. 2 Discuss this saying: A stitch in time saves nine. How is this saying related to house repairs?	 5 3
10	What do you think of Mariana? What lesson does Paulus learn in the end? (IP)	6 5	Say these words aloud. Listen to the /u/ʌ/ sound.	1

NOS.	QUESTIONS	TAX	TASKS	TAX
			Passage 6 - *Letters in the Newspapers* - Letters to the editor	
1	Do you think Confused is the person's real name? Why?	4	Are these statements true or false?	1,2
2	Why do people sometimes use pseudonyms when they write to newspapers? (IP)	4	Answer these questions. (Questions 1 - 4 as listed)(FP)	1
3	Do you think Ismail should become a pilot? Give reasons for your answer.	4,	Complete the sentences using has or have Fill in the blanks with suitable verbs	2
4	How can Rena's friend overcome her problem? (IP)	4	Work in pairs. Read the letter given below. Then complete the dialogue by constructing questions for it.	2
5	What type of letters in newspapers do you prefer to read?	4	Work in groups. What aspects of Malaysia would a tourist find fascinating? Choose from the list below. Give reasons for your choice.	4, 4
6	Would you like to write letters to the newspapers? If so, on what topic would you like to write?	4	Work in pairs. Discuss the following statements. Do you agree with them? 1. Tourists may go to other countries to enjoy the beautiful scenery there, but the warmth of the local people forms greater attraction. 2. People must travel widely to be appreciative of all the wonderful things they have in their own countries.	 4 4
7	What is Pensioner's main worry? (FP)	2	Work in pairs. Discuss the above letters with regards to: 1 content (what is the letter about?) 2 the intention of the writer (why?) 3 the effects of writing such letters to newspapers (e.g. public awareness. to create unity...)	 2 4 5
8	Why were German visitors disappointed? (IP)	4	Work in groups. Discuss how unity can be brought about at: 1 school level 2 neighbourhood level 3 national level	 4 4
9	Do you think that Pensioner is being unnecessarily worried? Give a reason for your answer.	4	Write a letter to the editor. expressing your views on the changing faces of other Malaysian cities.	4,
10	Why do you think Observer feels that buildings must reflect the culture of the country? Do you agree with him?	6	Study the following problems. Work as a group and discuss them. See if you can work out solutions to the problems.	4, 5

			Passage 11 - *And What Have You Read Lately?* - Wuthering Heights		
NOS.	**QUESTIONS**	**TAX**	**TASKS**	**TAX**
1	Do you think that 'Pride and Prejudice' will appeal to you? Consider 1 the theme of the story 2 the reader's comments	7	Read these statements. Suggest other reasons why people enjoy reading. (IP) 'Reading is an escape to fantasy.' 'Reading widens our knowledge.'	4 4
2	What does "scattered" mean in the poem?	2	Find words in the book report which mean: writer, summary, troubled, most exciting point, observation or remarks	2
3	The writer says the children "smile a celebration". What celebration is the writer referring to?	2	Here are some sentences on the writer, Charles Dickens. Write complete sentences using infinitives as complements of the verb 'to be'.	2
4	Describe in your own words, the picture the writer depicts in this poem.(IP)	3	Look at these book titles. Discuss with a partner what sort of stories might appear under these titles. 1 The Hound of The Baskervilles 2 The Good Earth	4 4
5	Look at the following words. Which of these words describe; Heathcliff, Catherine, Ellen.	2	State in a few sentences what sort of books you would like to read. Give reasons why such books appeal to you.	3 4
6	What do you think of Heathcliff, Catherine, Ellen.	4,5,6	Complete the following statements using information from the review.	2
7	Which of the three characters most appeal to you? Why?	4,7	Say if these statements are true or false.	1
			Work in pairs. Use the information in the book review of Wuthering Heights to write these: 1 Imagine that Wuthering Heights is going to be shown on television. Write a short synopsis of this novel so as to attract the interest of viewers. Give it a title.	3
			Based on the review of Wuthering Heights, write a book report in your book.	3

			Passage 16 - *Problems are opportunities* - Ananta and his father		
NOS.	**QUESTIONS**	**TAX**	**TASKS**	**TAX**
1	Do you agree with any of the opinions expressed above? Give a reason for your answer.	4,5,6	Complete the passage with the present perfect from the words in brackets.	1

2	Why do you think some people get jobs easily? Why are others consistently rejected even after they have attended several interviews?	4,5	Work with a partner. Imagine your partner is going to attend an interview. Give him some advice based on the talk you have just heard.	4,5
3	Based on the picture, why do you think it has happened?	4,	After listening to the talk, do you think such tips are important to job-seekers? Why?	4
	Work in groups of five. Study the following data about unemployment in Malaysia: The unemployment rate for 1981 to 1988 was 5.1%,4.7%, 5.6%, 6.3%, 7.6%, 8.7%, 9.1%, and 9.4% of the total labour force respectively.		Imagine you are both strangers in the queue. What would you say to each other.	5
4	Give suggestions on how you would reduce the unemployment rate.	4,5	Based on the profiles of Balan and Sharifah Hanum: 1 Discuss how each family would have responded when they first heard of the impending problems.	4
5	Draw a graph to illustrate the above facts clearly.	3	Explain how retrenchment affected Ananta's father's sense of worth. (IP) a. "Unemployment takes away your manhood".	3. 4
6	Explain briefly why you think the dip and the rises occur.	4,5	This story is written from a nine-year-old boy's point of view. How does he see serious issues like unemployment and retrenchment? (IP)	3
7	Who are the genteel poor? In what way are their lives more difficult than those who are obviously poor?	4,	Complete the following sentences in your own words.	2
8	Do you think this technique of writing is successful?	4	Ananta had views on many things. Find phrases or sentences in the passage that support the following statements.	1
9	In what way would the story be different if it were written from an adult's point of view.	4,5	Work in groups of five. Based on the article 'What is best for Bavania'. Imagine you are all economic advisors to the Prime Minister of Bavania. What measures would you suggest to a ease potential unemployment problem? b diversify the country's economy?	4 5 5

Passage 20 - *Figure Out These Facts* - Small man, big dreams				
NOS.	QUESTIONS	TAX	TASKS	TAX
1	When was the Neighbourhood Watch scheme set up? (FP)	1	Talk about how a Neighbourhood Watch scheme could be formed in your area. What are the things neighbours can do to help each other?	3 3

			(IP)	
2	What does the writer mean by a `self-help plan'? (FP)	2	Study the pictograph given. Make sentences comparing the amount of sugar consumed by each country. Use words like: least, most, minimum, maximum, average, more than and less than.	2
3	Why was the scheme started? (FP)	2	Here is a list of adjectives that can be used to describe change. Work with a partner. Decide whether they indicate a small (S) or a large (L) change.	2
4	What were some of the aims of Neighbourhood Watch? (FP)	2	List all possible services which can be given on a voluntary basis. Think of ways you can render free service to people in need of them.	3 5
5	What has happened as a result of the formation of these groups? (FP)	2	Based on the passage, say whether the following statements are true or false.	1
6	'Most crimes are preventable.' Do you think the statement is true? List all the common crimes which take place in a neighbourhood. Discuss ways people in your neighbourhood could help to prevent such incidences. Discuss in groups.	4,5,	Consider ways which could help to improve the standard of living of the people.	4, 5
7	Do you know anyone who does voluntary service?	3	Work in pairs. The verbs below can be used to describe changes in statistics over a period of time. Decide whether they indicate an Upward (U) or downward (D) trend.	2
8	If yes, what kind of service does this person do? Who benefits from this service?	3	Look at the graph on the number of voluntary organizations in this country. Using suitable verbs, describe the changes that you see. Work with a partner.	2
9	Do you think that education plays an important role in wiping out poverty?	4,	Based on the graph, explain why there is an increase or decrease in the number of organizations. (IP)	4
10	If there were no such homes for the needy, what do you think would happen to the homeless?	4,5	Answer the following questions: (FP) 1 What kind of a person is Edward Lawrence? 2 What is his aim in life? 3 What two special qualities did Edward possess which helped him in the beginning?	1
11	Suggest ways to overcome the problem mentioned in question 10.	4.5	Fill in the blanks with information from the line graph provided.	2
			Do you agree with the quotations. Discuss how these simple philosophies can be practiced in our lives.	4 5
			Write a report based on the information gained from the graph.	3

NOS.	QUESTIONS	TAX	TASKS	TAX
	Passage 2 - **Stand and Be Counted** - We can do it together			
1	*Why doesn't Halim enjoy novels by Agatha Christie? (IP)*	4	*Identify a phrase or a sentence which:*	
			1 supports a suggestion	1
			2 refutes a suggestion	1
			3 expresses a desire to consider a proposal	1
2	*What aspects of her novels do her loyal readers find interesting? (IP)*	4	*Answer these questions briefly. (FP)*	
			1 What is the problem facing the students?	1
			2 How much money is involved?	1
			3 Who suggests buying reading material?	1
			4 What is the reason for Kanan's suggestion?	1
3	*Agatha Christie writes Thrillers. Do you enjoy thrillers? Give reasons for your answer.*	4,7	*Work in groups. Take turns to be the people in the situations below. Complete the conversations according to the functions stated. Use suitable responses from the above tables and the words in the brackets.*	1
4	*Why did Pak Ali think the villagers would oppose his plans? (IP)*	4	*Look at the picture below. Work with a partner and decide what each picture is trying to say. (IP)*	3
5	*How did Busu feel about Mak Minah's family? (IP)*	4	*Are these statements true or false?*	1
6	*Which of the following is not true of Mak Minah? (IP)*	4	*Work in groups.*	
			1 Do you think it is important that everyone should know how to cook?	3
			2 How do societies in your school raise money for their projects? Outline a few ways used to raise funds.	3
				5
7	*Khatijah felt very strongly that the people in a community ought to ....(IP)*	4	*Works in groups of four. Read the situations below carefully. take turns to be the characters. Make up a suitable conclusion.*	3
8	*Work in pairs. answer these questions briefly. Give reasons for your answers. what would you do in these situations?*		*These words appear in the passage you are going to read. Look up their meanings in a dictionary.*	1
	1 You find your friends or classmates is badly in need of help.	7		
	2 You have just enough money for your needs and someone approaches you for a donation to help somebody.	7		

9			Match the phrases below with the correct pictures.	1
10			For each of the following identify the correct statement.	1
11			Work in pairs. Use the information in the passage to complete the following table.	2
12			Work in groups. discuss the following question. Some say they will help others if they have the money. Do you think it is necessary to have money in order to help people? Tell the class what you think.	4, 7
13			You want to write a letter to the State Services Department explaining Mak Minah's situation. Discuss her living conditions and take down notes to make a request for some financial aid for her.	3, 3
14			Choose a topic which interests everyone in class. Select teams to speak for and against the motion.	3

Passage 5 - Strike a Balance - How much land does a man need?				
NOS.	QUESTIONS	TAX	TASKS	TAX
1	What is the title of the programme that Encik Radin is appearing on?	1	Say whether the following statements are true or false.	1
2	What does Encik Radin attribute his success to? (FP)	2	Fill in the blanks with as far as, not only, even though and so that.	1
3	What does Encik Radin Own? (FP)	1	Discuss what are desirable qualities in a good student. Present the results of your discussion in class and compare it with the opinions of other groups. (IP)	3
4	What are the three factors that helped Encik Radin to get into business successfully? (FP)	2	Work in pairs. Act out the following situations between Zalina and her mother. Each student should take turns to be Zalina and her mother.	3
5	Do you like parties?	3	Consider the characters of the four people below. Discuss 1 whose behaviour you consider to be extreme?. Why? (IP) 2 whose behaviour you consider desirable and moderate? Why? (IP) 3 how the behaviour of someone whom you consider to be extreme can be made more moderate? (IP)	4 4 5

6	When do you think is the right time for such activities if you are taking a major exam? Give reasons.	5	Talk with a partner. Discuss your strengths and weaknesses. Are you moderate in your habits, behaviour, beliefs and spending?	4, 6
7	Sham says. 'We're young only once'. Do you think this is an excuse for Sham to do as he pleases, or do you think it is a justified argument?	6,7	Say these words aloud. Listen to the /θ/ sound.	1
8	How would you describe Zalina and Seng Chong? What kind of personalities do they have?	4	Complete the following statements with words from the story.	2
9	Who in your opinion, leads a moderate life? Whose home background do you prefer? Give reasons to support your choice.	4,5,6,7	Use these words in sentences of your own to show their meanings.	1
10	Discuss your own home background. Is it similar to Zalina's or Seng Chong's?	4,56.	In groups of four. Discuss what possible endings would be most appropriate for the story. Work out an ending and write it out. Check with the conclusions of the other groups and decide which ending is most suitable. (IP)	4, 5
11	Which word best describes Pahom?	2	Write a story based on the following notes. Use the table as a guide to make your story interesting and realistic.	3
12	How can greed become more powerful than Pahom? (IP)	4	Think of other incidents where someone lacked moderation. (IP) 1 What did the person(s) do? 2 How did other people react to them? 3 Did the immoderate behaviour change finally? Consider the questions above carefully before you write your story. Let the moral unfold naturally as the story develops.	3. 3 5
13	When a person is controlled by his greed. what would the outcome be? (IP)	4,5	In groups. work out short scenes to show the characteristics of the people above.	3
14	Why did Pahom need proof to say that the land was his? (IP)	4	Suggest how unpleasant and bad behaviour can be changed. Discuss what is socially acceptable and moderate behaviour in similar circumstances.	3. 5
15	What was the condition that the chief impose on the sale of the land? (FP)	2		
16	How was the land belonging to Pahom going to be marked off? (FP)	2		
1⁷	Why didn't Pahom sleep well that night? (IP)	4		

18	Why did Pahom find it hard to turn back? (IP)	4		
19	What do you think were Pahom's feelings when he realized that the sun was setting?	4,5		

Passage 8 - Justice for all - A case for justice				
NOS.	QUESTIONS	TAX	TASKS	TAX
1	Who got the baby in the end? (FP)	2	Complete the passage with one word from the table and a suitable preposition. Each word can be used at least once.	1
2	Who was the real mother? (FP)	1	Rearrange the following sentences in the order that you think right.	1
3	Who was the right mother? why? (IP)	4,5	Say the following statements are true or false. Correct the false statements.	1
4	"Justice is the upholding of what is right." Do you agree with the judge's decision? Give a reason for your answer.	4,5,6	We only know if we are just and without prejudice when we are put to the test. Work in groups of four. Study the notes below. Choose one set of notes and complete the story.	3
5	What kind of person was the wife? Did you like her? Give your reasons.	6,7	Use the information in the story to complete the sentences.	2
6	Why did the husband deny that he had told his wife about the unicorn? (IP)	4	Find out words in the passage with the following meanings:	1
7	What is the moral of the story? (IP)	4,5,7	Work in groups. The text contains clues about personal feelings. Explain what the following characters felt and why.	
			1 Jem - when the verdict was read (IP)	4
			2 Aunt Alexandra - when she heard the news about Tom's death. (IP)	4
8	In literature, poetic justice means the rewarding of good and the punishment of evil. In this story, do you think there was poetic justice in the end. Explain.	6	Work in groups. Read the last paragraph carefully. Discuss what kind of person would make such a statement.(IP) Complete the list below to show the special qualities such a person would possess. (IP)	4 4
9	This story is recounted through the eyes of a little girl called Scout. It deals with the prejudice of white people against blacks. Why do you think the author chose a child to be the narrator of the story?	4,5	Work in groups. Look at the list below. Choose as many items as you need and write out a short play. You may introduce an item that is not in the list.	3
10	Do you agree with the fly's argument to justify its existence?	4,5,6	Work in a group. Discuss what you would do in these situations.	
			1 You are an only child. Your parents are aged and cannot live by themselves. You are living on your own and are quite well	4

			off.	4
11	Have you ever considered a fly from this angle before? Give reasons for your answer.	4,5,6	2 You see a child shoplifting while shopping in a department store. You know he will get into serious trouble if he is caught. You also realize it is likely that he will be caught as a sales assistant is watching him closely.	4, 5
			Work· in pairs. Write down two of your greatest successes and two of your greatest failures. Explain why they stand out in your mind.	3 4 5

Passage 11 - The Child - Punishment!			
NOS.	QUESTIONS	TAX	TASKS	TAX
1	Listen to the appealing tone of voice in the poem. Why does the poet say the child cannot wait? (IP)	4,5,	Explain the situation shown in the picture very briefly. What would you do if you were in such a situation?	3. 4. 5
2	The poet calls children "the fountain of life". What does she mean by that? (IP)	4,5	Listen to the text again. The following are meanings of words found in the text. Identify the words.	1
3	In what ways the people neglect or abuse children? Why is it wrong to do so according to the author?	2	Child abuse is wrong. How can public awareness of such abuse help to stop it? Discuss.	3 4. 5
4	Are these the kind of neighbours you want? Give a reason for your answer.	5,6,7	Work with a partner. Discuss possible causes of child abuse. Give examples. (IP)	4
5	Why do you think the neighbours were reluctant to help the children even after the news of their suffering was published in the papers?	4,5	Discuss with your partner the reasons why some people do not love their children. (IP)	4
6	Why do you think John bullied Jane so often?	4,5	Work with your partner and find out why problems with money or divorce can help cause child abuse. Share your ideas with the rest of the class. (IP)	4, 4
7	"Mrs. Reed was blind and deaf on the subject." Explain the meaning of this sentence. What do you think were her reasons for behaving this way?	4,5	Work with a partner. Describe Jane, John and Mrs. Reed. (IP)	4
8	The passage reveals that Jane lived with daily abuse. Do you think her spirit was thus broken? Support your answer with evidence from the passage.	6	How do you think Jane, John and Mrs. Reed ought to be rewarded or punished in the end in the context of poetic justice.	6.0
			Study the following newspaper headlines on child abuse. Write a letter to the papers. Express your opinion on child abuse and	4. 5

			suggest ways to prevent it.	
			As a judge, decide how you would settle this case without sending the offender to jail or fining them. Think of as many creative and interesting ways as you can to sentence the offender. The case: Mr. Raman has been beating his son every day. He says his son is very naughty and will not listen to him. Recently, the child was admitted to hospital for severe injuries.	4 5. 4

Passage 14 - *Rhythm and Rhyme* - How to tell the wild animal				
NOS.	*QUESTIONS*	*TAX*	*TASKS*	*TAX*
1	Do you agree with the sentiments of the poet?	6	Match the qualities the people of a country should have with the clues from the poem.	3
2	Can you mention other qualities a nation must have in order to strengthen the country?	3	Based on the poem, say whether the following statements are true or false.	1
3	Do you like this poem? What do you like or dislike about it?	7	Work in groups. Discuss the things that have changed from childhood to teens. Have you for example, changed your mind about the choice of a career? As a child, you might have wanted a glamorous job and now as a teenager you may want something else.	4, 4, 4
4	Do you remember anything in particular as a child?	3	Work with a partner. Read the following extracts of the poems. What is the message that the poet is trying to convey?	4
5	Can you think of something which you see in its real form now, that you did not in your younger days? Describe the way you saw it then and now.	4,5	Work in pairs. Answer the following questions based on the poem. 1 Establish the identity of the speaker. Is it the poet himself or is it another character? 2 What is the tone or mood of the poem?	 4 4
6	Why did the poet never see the moon as it is, when she was a child? (IP)	4,5	Explain the last two lines of the poem.	4
7	Why does she now see "only the moon and nothing but the moon"? (IP)	4,5	Write down all the words, events, memories and impressions that you associate with your childhood.	2, 3
8	What is the effect of the words "only" and "nothing" in the last line of the poem? (IP)	4,5	Write short poems using the following as opening lines.	3
9	What would you say is the mood of the poet?	4,5	Write a poem with the theme explaining "What would you see in Malaysia that would give you much pleasure".	4 5

APPENDIX 7.1: The Questionnaire

Questionnaire On Teacher Training
for the Teaching of Reading Comprehension

Introduction

The aim of this survey is to gather information about how students are prepared to teach reading in secondary schools. It is being undertaken as a matter of a professional interest by the researcher in relation to his study aimed at improving/developing teacher training.

It is realised that completion of this questionnaire will take up time and attention at what may well be a busy time for you. It is desirable, however, that the fullest possible information about how teachers are prepared to teach reading/reading comprehension is available to the researcher, and your help in providing that information will be very much appreciated.

Confidentiality

The answers you provide to this questionnaire will be treated in strict confidence. No individuals will be identified in any report. The researcher would be very pleased to share with any one who is interested the completed findings of this study.

Returning the Questionnaire

Please complete the questionnaire and return it as soon as possible to:

Ghazali Mustapha
c/o Research Office
School of Education
21 University Road
University of Leicester
Leicester LE1 7RH
ENGLAND

THANK YOU FOR YOUR HELP

About you

Name :.. University: ....

Academic programme:...Academic year/Semester:......................................

C.G.P.A. (last examination):..

Grade/Points for Reading course:...

Please circle the relevant number or write/tick the information that applies to you.

1. Are you now an in-service undergraduate?   YES   1
                                                    NO   2

2. If your answer to question 1 was YES, please give the following information.
    If it was NO go on to Q3.

    (a) age-range of pupils you are likely to teach upon graduation [   ] yrs to [   ] yrs

3. (a) Have you had any teaching experience in teaching English as a subject?
                                                                    YES   1
                                                                    NO   2

    (b) If it was YES, how many years of teaching experience have you had?

                                    1 - 3 yrs   [   ]
                                    4 - 6 yrs   [   ]
                                    7 - 9 yrs   [   ]
                                    10 yrs and above [   ]

4. How much training have you had so far in the teaching of reading/ reading skills
    during the B.Ed TESL Course?
                                one semester training   [   ] :   [   ] hours
                                two semester training   [   ] :   [   ] hours
                                three semester training [   ] :   [   ] hours
                                others (please specify)

                                ....
                                ....

5. Has the teaching of reading comprehension been part of the course in Q4?

                                                                    YES   1
                                                                    NO   2

6. If your answer to Q 5 was YES, please answer Q6. If your answer was NO, please
    go on to Q7.
    (a) What models (e.g. is reading comprehension viewed globally or as "skills")   were you taught
    about in the designing of reading comprehension questions/ tasks
        and activities?
                    (a.i) Questions   (a.ii)   Tasks/activities

    ....

    ....

    ....

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(b) What general approaches were you taught about in the designing of reading
   comprehension questions/ tasks and activities?
   (b.i)   Questions   (b.ii) Tasks/activities

....

....

....

....

....

....

7. How would you design reading comprehension questions/tasks and activities?
    (7.a) Questions   (7.b)   Tasks/activities

....

....

....

....

....

....

8. Did your course include consideration of comprehension taxonomies?
                a) information   YES   1,   NO   2
                b) discussion   YES   1,   NO   2
                c) application   YES   1,   NO   2

9. If your answer to Q8 was YES (to any of a, b or c), please answer Q9. If your answer
    was NO, go on to Q 10.
    How do you relate comprehension taxonomies to the designing of reading compre-
    hension questions?

....

....

....

10. At the end of all the reading course(s) that you you have been exposed to how
    confident do you feel about the following areas?

    (For each item please circle one number)

		Very confident	Fairly confident	Not very confident	Not at all confident
(a)	knowledge about the reading skills	1	2	3	4
(b)	practice in the application of this knowledge (item a) in the classroom	1	2	3	4
(c)	knowledge about the teaching of reading comprehension	1	2	3	4
(d)	practice in the application of this knowledge (item c) in the classroom	1	2	3	4

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3

	Very confident	Fairly confident	Not very confident	Not at all confident
(e) knowledge about strategies of designing reading comprehension activities/tasks	1	2	3	4
(f) practice in the application of this knowledge (item e) in the classroom	1	2	3	4
(g) knowledge about comprehension taxonomies (e.g. Barrett's, Taba's, Bloom's, etc.)	1	2	3	4
(h) practice in the application of this knowledge (item g) in the classroom	1	2	3	4

11. In your opinion, was your course work (lectures, seminars, essays, private study, etc.) well integrated with your professional needs in relation to the following areas?

(For each item please circle one number)

	very well	Fairly well	slightly	Not at all
(a) methods of teaching reading comprehension	1	2	3	4
(b) designing of reading comprehension questions	1	2	3	4
(c) designing of reading comprehension tasks/activities	1	2	3	4
(d) application of reading comprehension skills in the classroom	1	2	3	4

12. Please look at the following list of aspects of the teaching of reading skills covered in some teacher training courses and, for each, indicate:
    (a) if it was covered in your course
and (b) how confident you feel about teaching this aspect of reading
    (Please indicate YES or NO and for each item please circle one number)

	Covered/ not covered	Very confident	Fairly confident	Not very confident	Not at all confident
(i) using children's literature	YES/NO	1	2	3	4
(ii) selecting, sequencing or combining comprehension activities/tasks	YES/NO	1	2	3	4
(iii) directing questions to reading comprehension tasks and activities.	YES/NO	1	2	3	4
(iv) relating questions to instructional objectives in line with pupil's needs	YES/NO	1	2	3	4

(Please indicate YES or NO and for each item please circle one number)

4

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