THE APPLICATION OF QUESTION LEVELS IN THE TEACHING OF YEAR ONE PRIMARY SCHOOL STUDENTS

Tajularipin Sulaiman
Nooreen Noordin
Faculty of Eduational Studies
Universiti Putra Malaysia

The purpose of this research was to examine the extent to which teachers use question levels in the teaching of investigation skills. Six question levels based on Bloom's Taxonomy (1956) were examined in this study which included knowledge, comprehension, application, analysis, synthesis, evaluation and affective as well (Ghazali Mustapha, 1998). The sample used was selected from three teachers who each taught Year 1, 2 and 3 classes in a primary school. Three methods of data collection for a case study were used which included observation, interviews and documentation as evidences. Data obtained from the three methods were analysed to conclude the findings of the study. Findings from the study indicated that while teaching investigation skills, teachers often utilize knowledge question levels followed by analysis and comprehension question levels. Questions from the other levels are seldom used in the teaching activities conducted. According to the teacher, the use of the questions enabled students to perform investigation-based activities and to understand the lesson effectively. In addition, the use of questions stimulated students' thinking skills and encouraged active discussions among members in a group work activity.

BACKGROUND OF THE STUDY

The New Primary School Curriculum or *Kurikulum Bersepadu Sekolah Menengah* was fully implemented in 1983. The implementation of the curriculum was in line with the National Philosophy of Education (1989) which emphasized individual potential as an integrated whole, in the quest for holistic individuals in terms of intellectual, spiritual, physical and emotional values. According to the Curriculum Development Centre (CDC), the National Philosophy of Education (1989) states:

> Education in Malaysia is an on-going effort towards 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 possess high moral standards and who are responsible and capable of achieving a high level of personal well being as well as being able to contribute to the harmony and betterment of the family, society and the nation at large.
>
> (Curriculum Development Centre, 1989, page iv)

The National Philosophy of Education was then refined further, with the inclusion of family values, and was later known as the National Education Philosophy, as reiterated earlier.

In the effort to realize this philosophy the school environment should provide students with opportunities to obtain experience in problem solving skills and to encourage these students to think. It is hoped that each student will develop intellectually, spiritually, physically and emotionally in a balanced manner.

Roslena (1999) emphasized that a systematic planning should be prepared by the teacher so that students know what needs to be done before, during and after an investigation-based activity has

been completed. The teacher must plan investigation-based activities which are guided, interesting, challenging and properly sequenced to cultivate the feeling of curiosity among students and so as not to confuse them. A teacher must realize that students' learning environments should be an impetus for engaging in investigation activities which are suitable with the students' developmental level as a whole and their developmental level as individuals.

Apart from planning during the teaching process, the teacher also acts as a question designer. In the teaching of investigation skills, the teacher must design and produce knowledge and comprehension-level questions to assess students' understanding of science knowledge or concepts. In providing opportunities for students to solve problems and make decisions in an investigation-based activity, the teacher needs to provide high level questions in the form of divergent questions. High level questions which are divergent provide opportunities for students to engage in question and answer session (Q-A) so that ideas can be shared. Through the teaching and learning process, the teacher's role as a guide and as an initiator to the activity is seen as crucial in developing investigation skills among students.

THE APPLICATION OF QUESTION IN TEACHING

In general, a question can be defined as a stimulation tool used by an individual to obtain information, review comprehension, collect information and assess ability on a certain subject. Questioning is a technique or a way whereby an individual poses a question to fulfill a requirement and with a specific purpose (Som & Mohd. Dahalan, 1998).

Wolfinger (1994) provides three general purposes for formulating questions. The first purpose is to assist students in collecting and organizing information based on an activity. Questions posed by

the teacher can be used to encourage students to continue an investigation. Questions can assist a student in developing a concept from an investigation as well. Through intelligent questioning, the teacher can help students to be aware of a certain phenomenon and proceed in encouraging them to engage in critical thinking and problem solving.

The second purpose for formulating questions is to reinforce a certain concept and skills. In relation to this, the teacher can use questions to review the concepts taught or a skill that has been performed. Questions are also posed to help students to recall a certain procedure that was previously used to solve a problem. A teacher can use questions, review past information, for students to comprehend a new lesson. These questions may be asked at the beginning of the lesson, during the set induction appointment.

Lastly, the end purpose is to assist students to develop skills and concepts. Students may use questions during the investigation process. Students can use questions to collect additional information as well. The teacher should help students to obtain answers by preparing hands-on investigation activities or arrange sets of investigation activities and let students acquire answers on their own. The teacher needs to encourage them to ask questions based on the lesson learned and the activities that they have conducted.

Som and Mohd. Dahalan (1998) listed several reasons for questions and questioning in general. They stated that among the reasons for having questions and questioning are: a) to develop the critical and creative thinking process, b) collecting and analyzing information, c) to encourage and increase students' metacognitive levels, d) to revise on their knowledge that had been learned earlier, e) to stimulate students to participate actively in the teaching and learning process, f) to encourage the creation of new ideas and the use of existing ideas, g) to create a suitable environment for the sharing of ideas between teachers and students, h) to test or evaluate

students' abilities, performance and progress periodically, i) to identify whether the teaching and learning objectives are achieved or vice versa, j) to attract students' interest and attention to continue and be consistent in learning and k) to create a friendly and defined environment between teachers and students.

Based on question types, the teacher or the question designer will normally design questions based on Bloom's Taxonomy of cognitive levels (1956). However, Ghazali Mustapha (1997) proposed the Cogaff Taxonomy or the Cognitive-Affective Taxonomy which is the combination of Bloom's Taxonomy (1956) In the Cogaff Taxonomy six cognitive levels of the the Bloom's Taxonomy are added with another level which is higher known as the affective domain. Ghazali Mustapha (1998) had adapted the five levels of the affective domain from Krathwohl's taxonomy as one level to simplify its use and interpretation.

This is in line with Kissock and Iyortsuun's (1982) opinion that it is not easy to differentiate among the five levels in Krathwohl's Taxonomy. This is because the categorization of complex values may take quite a long time to implement. These affective values are not something that is tangible or capable of being developed in a specific lesson. Therefore, in the study of examining affective levels of questions it is best to categorize all the affective levels into one level.

Apart from that, Ghazali Mustapha (1998) classifies questions at these levels: knowledge, comprehension and application as convergent questions, while the high-level application questions such as analysis, synthesis, evaluation and affective are classified as divergent questions. Poh (1997) is in agreement with the classification and states that knowledge level of question is a low level convergent question. Knowledge and application question levels are considered as high ranking convergent questions. Poh (1997) also explained that analysis question levels are low ranking

divergent questions while synthesis and evaluation question levels are high ranking divergent questions.

Poh (1997) also explained the meaning of a convergent question and a divergent question. According to Poh (1997), a convergent question needs a specific answer. If the obtained answer is different from what it is supposed to be, then the answer is wrong. A divergent question on the other hand, is not directed towards one specific answer. In fact, this type of question requires one to state one's opinion, feelings, comments, prediction and thoughts on a certain matter.

A question that is being asked must be in a suitable sequence to instigate an effective teaching process. According to Wolfinger (1994), in general there are three sequences in questioning which include the simple to complex questioning sequence, the suitability questioning level and the diverse questioning level. In the simple to complex questioning sequence, the teacher has to start with a low level question that asks students to recall information and then to check on their comprehension, by asking questions based on the information obtained. This questioning sequence is continued with high level application and synthesis questions.

The suitability of a questioning approach looks at the concept of asking appropriate questions to students in the class. Some of the students may not be ready to answer questions that require high-order thinking skills and it would be best if the teacher asks low-level knowledge and comprehension questions. At the same time, there will be students in the class who want more challenging questions such as the application or synthesis question levels. Thus, the teacher has to cleverly plan by developing and allocating questions that are suitable with students' levels of development in the class.

The last approach is the diverse questioning sequence. In this questioning sequence, the questions are organized in such a way that high order thinking question level can be answered by students followed by a simple question level and lastly, back to the high level of question. This way, students who cannot answer the high level of questions such as synthesis or analysis can still follow the discussion in class.

Gega (1994) suggests steps on how questions can be developed to encourage investigation-based activities in the classroom. According to Gega (1994) these steps include:

a) Teacher starts the lesson by asking divergent questions to enable students to have a general idea on the investigation they are going to conduct;

b) Convergent questions are asked to focus on a certain matter or example;

c) To enable the student to explore several situations that might produce or change the material's characteristics, the teacher can provide divergent questions so that students can collect relevant information; and

d) If students are still weak in terms of the background concept that is to be investigated, the teacher needs to use convergent questions.

Gega (1994) added that convergent questions and divergent questions must be asked alternately to assist students especially when investigating a situation or a phenomenon. Convergent questions are asked when students have difficulty in obtaining answers due to various variables that exist. By focusing on a variable in an investigation, students will be able to understand the processes involved and achieve the investigation goals. Divergent questions require the teacher to allocate more time for students to think about the problem being investigated.

Som and Mohd. Dahalan (1998) added that to encourage students to think systematically, the teacher needs to plan stimulating questions before the teaching and learning process commences. The stimulating questions are used to encourage students to think and respond on the stimulation so that their thinking will be in order. They clarified that the stimulating questions are known as 'verbal management'. Verbal management has two important consequences which are to enhance skills and reflex.

From the discussion above it is evident that developing questions play an important role in the teaching process. A good teacher who develops and conducts the questioning activities in the classroom will be able to execute the teaching process smoothly. A good questioning activity can also direct students to perform science processes effectively and enhance their investigation skills as well. This study also aims to look at how the teachers use questioning levels to assist the teaching and learning process and the acquisition of investigation skills. To examine this question in detail, in the continuing discussion, the researcher will present his research questions in detail.

DEFINITION OF TERMS

To fulfill the purpose of this study, the definitions of the main terms used are as follows:

Investigation Questions

Investigation questions refer to questions posed by the teacher to the students to assist them in conducting an investigation. In general, these questions are categorized into seven levels according to the Cogaff Taxonomy (Ghazali Mustapha, 1998) which includes: knowledge, comprehension, application, analysis, synthesis, evaluation and affective.

Cognitive Knowledge Level

A Cognitive knowledge level refers to types of questions that emphasize on memory. As an example, the question assist students in recognizing or recall concepts, principles, phenomena or ideas that had been taught. This level also requires students to exhibit their knowledge in the form of classification, sequencing and listing of facts (Bloom, 1956).

Cognitive Comprehension Level

A Cognitive comprehension level refers to the type of questions that emphasize on understanding of concepts or principles. At this level, students are supposed to be able to use ideas, concepts, principles and theories learned to solve problems. The principles used must be transparent as well. Students should be able to transform information from diagrams, graphs, formula or explain scientific terminology (Bloom, 1956).

Cognitive Application Level

A Cognitive application level refers to the type of question that emphasizes on students' abilities to use ideas, concepts, principles and theories to solve problems that they have not encountered before (Bloom, 1956).

Cognitive Analysis Level

A Cognitive analysis level requires students to identify elements that form an idea as a whole, looking at the relationship between several components and dividing a topic into several inter-related components. An example of a behavior at this level is differentiating, comparing, connecting, doing an experiment and solving a problem (Bloom, 1956).

Cognitive Synthesis Level

A Cognitive synthesis level encourages students to become more creative and use their imagination. Students will explore and solve a problem that has been presented. An example of a question for this level is requiring students to plan, combine, create or produce something (Bloom, 1956).

Cognitive Evaluation Level

This level requires students to make deliberations on a certain matter. Students need to evaluate an idea, solve a problem and make a decision. An example of question for this level is requiring students to assess, give views, to explain the meaning of a certain matter or issue, do estimation and give an interpretation (Bloom, 1956).

RESEARCH QUESTION

To identify the ways in which teachers implement investigation skills in the process of teaching, a qualitative study was used to answer the following basic questions:

1. To what extent does the teacher develop questions based on Bloom's Taxonomy (1956) which include: knowledge, comprehension, application, synthesis and evaluation to assist Year 1 primary school students in conducting investigation-based activities?
2. How do the questions posed, assist the Year 1 primary school students in conducting investigation-based activities?

In obtaining relevant information to answer the questions above, the researchers made an observation on the teachers' teaching processes in the classroom as well as on the investigation-based activities done by students working in groups. The researchers also conducted an interview session with the teacher to study the understanding on the science process skills and planning of activities

done by the teacher. In addition, lesson plans that had been prepared by the teacher were examined in detail.

RESEARCH METHODOLOGY

The Study's Location

To fulfill the requirement for the study's data collection and to get a clear picture of what goes on in the teaching of investigation skills at the primary level, one primary school was selected as the specific location of the study. The primary school chosen was Sekolah Kebangsaan Sri Pelangi (SKSP). The selection of SKSP had deliberated several criteria to suit the needs and characteristics of this study. This was pertinently considered so that the selected location for the study did not limit what needs to be researched upon.

The Study's Sample

There were two groups of participants chosen in this study. The first group comprised of teachers and the other group of students. These participants in this study were obtained from the same school. The researchers decided that for students, the age group involved in the study was between 7 - 9 years old, which is from Year 1 until Year 3. For the teachers, three participants were chosen to be involved in the study. Among the criteria considered for the selection of teachers was their willingness to cooperate, permission from the school itself, and the subject taught by the teachers in the school.

Duration of Study

The duration of the fieldwork study done was one semester of school session which was between five to six months. The length of time was in accordance with Patton's (1987) statement that in an anthropological study, the suitable duration of a study whereby the

researcher has to be at the study's location is between six months to one year. Although the duration of the study was for about six months, the researchers had been at the location where the study was done, much earlier before the study commenced. This was due to the fact that the researchers needed to get acquainted with and establish a good rapport with most of the teachers and students in the school. Apart from that, the researchers had conducted a pilot study, prior to the real study to refine the study's research questions and to ensure the process of collecting data for the real study was done smoothly.

Method of Data Collection

In this study, the researcher had used several methods of data collection to obtain as much descriptive data as possible. This was done to get a holistic picture on how teachers execute the process of teaching investigation skills in the classroom. For this purpose, three main methods of data collection was used in the qualitative study which includes: (a) documentation evidence, (b) observation and (c) interview (Van Maanen, 1982; Roskos & Neuman, 1995; Wiersma, 1995; Gay, 1996). These methods were used for the whole duration of the study.

The employment of several methods of data collection was deemed suitable as each method used was able to consolidate all the data obtained in this data (Patton, 1987). Wiersma (1995) termed this data consolidation method as "triangulation" and described it as a qualitative cross-validation that can be implemented based on various data sources or diverse methods of data collection.

In the observation method, Kidder (1981) asserted that this method can be used as a research tool as it allows for a research direction which is carefully planned, spontaneous, recorded in an organized manner and its reliability and validity can be verified and controlled. When conducting class observations, the researchers

took notes which covered what went on in the class or group activities relevant to what was being observed. Apart from that, the researcher also took notes of the questions posed by the teacher and statements made directly by the students and teachers.

Besides observation, the method of collecting descriptive data using interview sessions was also a common technique used especially in studies involving sample observation (Bogdan & Biklen, 1992). The interview method is seen as having equal importance as the observation method. Without the interview method, the data obtained from conducting an observation might not give a complete picture on what had been observed. Through an interview the data obtained from an observation can be verified and refined further. In the context of the study, some of the questions asked based on the interviews done with the teachers were the science process skills used in their teaching.

There are several kinds of documents compiled in this study. The first kind of document used is known as the public record (Bogdan & Biklen, 1992) which was the complete and official school document. This document was used by the researcher to obtain information regarding the school's background, statistics on the total number of students and teachers as well as the record on students' performance in school. The second kind of document examined by the researcher was a personal document produced by an individual; referring to one produced by the participants of the study (Bogdan & Biklen, 1992). The data from the document include the teacher's lesson plan, the teacher's teaching steps, additional questions prepared by the teacher and the teaching outline of investigation skills taught by the teacher.

Method of Data Analysis

In a qualitative research, data collection process and analysis is done concurrently and complementary to each other (Cocklin, 1998). Data analysis is seen as a process that is interconnected and one that is continuous. In conducting a qualitative research as in this particular study, Cocklin (1998) adds that the first observation done by the researcher is the first step in the initial stages of data analysis. However, to produce findings of a study which is complete and holistic, Merriam (1988) and Cocklin (1998) suggested data analysis be done in two stages, the first is during data collection itself and the second stage is after the data has been collected which would be more formal and intensive in nature. In the context of this study, several fine-tooth combing and analysis of data as suggested by Miles and Huberman (1984) were used: (a) summary, (b) making reflection notes and (c) making memo notes.

The triangulation method involves comparison of data obtained through various ways of data collection. This method enables the researcher to verify findings as the minimal difference shows a small measurement of biasness in the data obtained. Furthermore, the comparison made between the various methods enables the researcher to combine the data and amend any weaknesses found in the data source (Patton, 1987). As an example, the data obtained based on the class observation done was compared with the data obtained from the interview sessions conducted with the participants of the study. The data obtained form the interviews done with the participants was then compared with the documents collected from the participants of the study.

FINDINGS OF THE STUDY

QUESTIONING ACTIVITIES IN THE TEACHER'S TEACHING

Question Levels in the Teacher's Teaching

In this study, there were seven question levels being focused as suggested by the Cogaff Taxonomy (Ghazali Mustapha, 1998). Questions posed by the participants while they were teaching in class were recorded and analyzed. Based on the observations done on the four participants of the study, the percentage of each question level posed is depicted in Table 5.21.

Table 5.21
Percentage of Question Level Posed During Teaching

Question Level	Teacher: Mala	Teacher: Zalina	Teacher: Rashid	Teacher: Asri	Average
Knowledge	70.9%	37.1%	47.6%	40.0%	48.9%
Comprehension	10.9%	20.0%	11.4%	28.5%	17.7%
Application	5.5%	6.3%	5.2%	16.2%	8.3%
Analysis	10.9%	31.7%	32.8%	13.3%	22.2%
Synthesis	-	-	0.9%	-	0.2%
Evaluation	-	-	0.4%	1.0%	0.4%
Affective	1.8%	4.8%	1.7%	1.0%	2.3%

In the knowledge question level, the four participants posed questions at this level during each of their own class teaching. Questions at this level were most frequently produced by the participants during their teaching in class as compared to the other question levels. On the average, questions from the knowledge question level were produced as much as 48.9% by the participants from the six teaching observations done. Table 5.22 summarizes

the reasons for the participants posing questions at the knowledge question level in the teaching of investigation skills.

Table 5.22
The Use of Knowledge Question Level in Teaching

The Use of Knowledge Question Level	Teacher: Mala	Teacher: Zalina	Teacher: Rashid	Teacher: Asri
Evaluate students background knowledge	/	/	/	/
Easy to understand question and a simple answer	/	/	/	/
Encouragement to discuss and exchange ideas	/	/	/	/
Assist in the teaching of investigation activities	/	/	/	/
To engender the feeling of curiosity	/	/	/	/
To attract students attention quickly	/	/	/	/

The four participants stated that the knowledge question level was important for teachers to asses the extent to which students' background knowledge were, before the teacher posed the subsequent higher level questions. Miss Mala, one of the teachers who participated in the study described that the knowledge level questions can help students recall lessons taught earlier. In addition, the other three participants also described that they frequently used knowledge level questions because they were easier to understand and requires only an easy and simple response. This simple question level provided opportunities for students to discuss and to exchange views to obtain answers.

From the investigation skills viewpoint, the four participants delineated that knowledge question level can provide support in the teaching of investigation skills in the classroom. This question level can attract students' interest immediately and bring about the feeling of curiosity among students. Miss Mala also explained that the knowledge question level can stimulate students' thinking skills.

The second type of question that was considered by the four participants was the comprehension question level. The frequency of the comprehension question level posed by the four participants was 17.7%. The summary on the use of questions at the comprehension level during the class teaching by the participants in this study can be referred to in Table 5.23 below.

Table 5.23
The Use of Comprehension Question Level in Teaching

The Use of Comprehension Question Level	Teacher: Mala	Teacher: Zalina	Teacher: Rashid	Teacher: Asri
Evaluation of students' comprehension on the topic taught	/	/	/	-
Stimulate thinking skills	/	-	-	/
A segment of the teaching activity	/	/	/	/
Assist in the teaching of investigation activities	-	/	/	/
Evaluation students' comprehension on the problem being investigated		/	-	-

In the comprehension question level, three participants (Miss Mala, Miss Zalina and Mr. Rashid) described that questions at this level are important in assessing students' understanding of what the teacher has taught. Miss Zalina adds that comprehension question level can be used to observe students' understanding of the phenomena or problem being investigated in a particular lesson. Miss Mala and Mr. Asri emphasized that this question level can encourage thinking skills among students in a classroom. In addition, three participants of the study; Miss Zalina, Mr. Rashid and Mr. Asri also described the activities in the comprehension question levels, considered as part of the important steps in the teaching and learning process in a classroom.

The next question level posed by the participants was the application question level. On the average, the four participants had produced 8.3% of questions at this level. The summary on the use of questions at the application level during the class teaching by the participants in this study can be referred to in Table 5.24 below.

Table 5.24
The Use of Application Question Level in Teaching

The Use of the Application Question Level	Teacher: Mala	Teacher: Zalina	Teacher: Rashid	Teacher: Asri
Encourages thinking Skills	/	/	-	/
Encourages investigation activities	-	/	-	/

Three of the participants, Miss Mala, Miss Zalina and Mr. Asri felt that the application question level can encourage students to think creatively and critically. Mr. Asri added that this question level might to encourage discussion among group members and to

answer questions posed by the teacher. In addition, three participants (Miss Zalina, Mr. Rashid and Mr. Asri) also believed that the application question level was capable of encouraging students to perform investigation activities during the teaching process. Miss Zalina considers that by using the application question level, the teacher was able to attract students' attention and get them interested to investigate further based on the problem presented.

The analysis question level as posed by the four participants with a percentage was quite high as compared to the other question level. On the average, the number of questions produced for the application level is 22.2%. Table 5.25 below summarizes the reasons participants use the analysis question level in the teaching of investigation skills.

Table 5.25
The Use of Analysis Question Level in Teaching

The Use of Analysis Question Level	Teacher: Mala	Teacher: Zalina	Teacher: Rashid	Teacher: Asri
Encourages students to be involved in an investigation activity	/	/	/	/
Enables the students to differentiate and make comparisons on the subject being investigated	/	/	/	-
Stimulates students' abilities to think	/	/	/	/

The four participants described that the questions posed at this level encouraged students to be involved in the investigation activities conducted during the teaching process. Miss Zalina and Mr. Asri viewed that by using the analysis question level, students working

in groups are able to engage in discussions to solve a problem and investigate it further. In addition, three participants of the study (Miss Mala, Miss Zalina and Mr. Rashid) also believed that questions at this level allowed the students to differentiate and to make comparisons on the subject being investigated in the lesson. The four participants in this study explained that the analysis question level was created to stimulate students to think creatively and critically.

The subsequent question level taken into account by the four participants in this study was the affective question level. On the average, based on the six observations done each participant posed a number of 2.3% affective questions to the students while teaching in the classroom. The small percentage was due to the fact that although it was not necessary not to deliver moral values in the form of questions; the participants in this study used a different approach such as giving advice or having discussions in conveying the moral values of the lesson. Nevertheless, the summary on the participants' use of affective question level in this study can be referred to in Table 5.26.

Table 5.26
The Use of Affective Question Level in Teaching

The Use of Affective Question Level	Teacher: Mala	Teacher: Zalina	Teacher: Rashid	Teacher: Asri
Encourages students to be involved in discussions and give opinions	/	/	/	-
Motivates to inculcate moral values /	-	/	-	-

Three participants of the study (Miss Mala, Miss Zalina and Mr. Rashid) described that the affective questions posed in the classroom encouraged active discussions among students. Through the affective question levels, teachers were able to encourage students to present their views and discuss moral values pertaining to the topic. Miss Zalina also added that by stating that affective questions can be used to motivate teachers to inculcate relevant moral values in their teaching.

As for Mr. Rashid, he had provided questions at the synthesis question level in the teaching process. Mr. Rashid acknowledged that questions at the synthesis level can be used to promote discussion among members in a group while they were engaging in the same activity. He also believes that through the use of synthesis questions, students are more driven to think creatively and critically.

Mr. Rashid and Mr. Asri also provided questions at the evaluation question level in the teaching of investigation skill. On the average, a number of only 0.4% questions at the evaluation question level were produced. Table 5.27 below depicts the summary on the participants' use of evaluation questions in the study.

Table 5.27
The Use of Evaluation Question Level in Teaching

The Use of Evaluation Question Level	Teacher: Mala	Teacher: Zalina	Teacher: Rashid	Teacher: Asri
Evaluates effective teaching	-	-	/	/
Encourages discussion	-	-	-	/
Among group members				
Motivates students to think creatively and critically	-	-	/	/

Two participants in the study (Mr. Rashid and Mr. Asri) deemed that the evaluation questions posed can be used to appraise the effectiveness of the teaching conducted. Apart from that, Mr. Asri also considered the evaluation questions he created as a medium in which discussion among students could be developed and encouraged. The two participants also agreed that the evaluation questions used could motivate students to think creatively and critically.

CONCLUSION

Findings from this study showed that there was a lack of use for questions at the application, synthesis and evaluation levels. Based on the observations done and interviews conducted in this study, it is evident that teachers generally prefer to pose simple questions that will expedite the teaching process and the students can easily answer the teacher's questions. In addition, it was also found that the three question levels were rarely used as students find the questions difficult to answer and teachers normally have to have a longer "wait time" to get answers from students. Hence, teachers need to familiarize students with these question levels and must guide them to give responses based on the phenomena being investigated upon in the questions.

REFERENCES

Bogdan, R. C. & Biklen, S. K. (1992). *Qualitative research in education: an introduction to theory and methods.* Boston: Allyn & Bacon.

Bloom, B. S. (1956). *Taxonomy of Educational Objectives.* New York: David McKay Company, Inc.

Cocklin, B. (1998). Applying qualitative research to adult education: reflections upon analytic processes. *Studies in the Education of Adult*, *28*, 88-116.

Gay, L. R. (1996). *Educational Research: Competencies for Analysis and Application.* New Jersey: Prentice Hall.

Ghazali Mustapha (1998). An Investigation into Teachers' Questions and Tasks to Develop Reading Comprehension – The Application of the COGAFF Taxonomy in Developing Critical Thinking in Malaysia. Unpublished Ph. D. Dissertation, University of Leicester, U. K.

Gega, P. C. (1994). *How To Teach Elementary School science*. New York: Macmilian Publishing Company.

Kidder, L.H. (1981). *Selltiz, Wrights and Cook Research methods in social relations* (4th Ed.). New York: Holt, Rinehart & Winston.

Kissock, C. & Iyortsuun, P. A. (1982). *Guide to Questioning: Classroom Prosedures for Teachers.* London: The Macmillan Press.

Merriam, S. B. (1988). *Case study research in education: A qualitative approach.* California: Josey-Bass Inc.

Miles, M. B. & Huberman, A. M. (1984). *Qualitative data analysis*. Beverly Hills, California: Sage.

Ministry of Education, Malaysia (1989). *National Philosophy of Education.* Kuala Lumpur: Curriculum Development Center.

Ministry of Education, Malaysia (1992). *KBSR 1Foundation*. Kuala Lumpur: Curriculum Development Center.

Patton, M. Q. (1987). *How to use qualitative methods in evaluation.* Newbury Park, California: Sage.

Poh Swee Hiang (1996). *Pedagogi Sains: Kurikulum Sains.* Kuala Lumpur: Kumpulan Budiman.

Poh Swee Hiang (1997). *Kemahiran Berfikir Secara Kritis dan Kreatif.* Kuala Lumpur: Kumpulan Budiman.

Roskos, K. & Neuman, S. (1995). Two beginning kindergarten teachers' planning for integrated literacy instruction. *The Elementary school Journal, 96,* pp. 195-215.

Roslena Zakaria (1999). Menyasiat Alam Kehidupan. *Majalah Pendidikan Sains,* 17, pp. 52-59.

Ruth, M. (1987). *Teaching primary maths*, Edward Arnold.

Som Hj. Nor & Mohd. Dahalan Ramli (1998). *Kemahiran Berfikir Secara Kritis dan Kreatif.* Petaling Jaya: Longman.

Van Maanen, J. (Ed.) (1982). *Qualitative methodology.* Beverly Holls, California: Sage.

Wiersma, W. (1995). *Research Methods in Education.* Massachusetts: Allyn & Bacon.

Wolfinger, D. M. (1994). *Science and mathematics in early childhood: curriculum and teaching.* New York: Harper Collins.

Wortham, S. C. (1994). *Early childhood curriculum development bases for learning and teaching*. New York: Macmillan.