

Categories of Questions and Critical Thinking

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Abstract Asking questions is an important teaching tool as this helps educators assess student learning and stimulate students to think. Alongside this notion, this study was made to determine the categories of questions and critical thinking skills of the Grade 10 students from Xavier University Junior High School. It sought to find out the categories of questions based on Anderson and Krathwohl's Revised Bloom's Taxonomy. This is followed by finding out the students' Student Talk and Critical Thinking Skills under Induction, Credibility, Deduction and Assumption identification. The relationship between teachers' categories of questions during classroom discussion and students' critical thinking was investigated and discussed. Teachers were also interviewed for this purpose. The results showed that the categories of questions based on Anderson and Krathwohl's Revised Bloom's Taxonomy, were usually at the lower categories, namely: Remembering and Understanding. While the students' over-all critical thinking skills fell under Average. The skills under Induction were scored at Average while the skills under Credibility, Deduction and Assumption identification were scored at Fair. Most of Student Talk fell under Brief Response, Silence and Covert or Mumbled Responses. Most of the Student Initiates consisted of only Covert or Mumbled Initiates. It can be surmised that there is a significant relationship between category of questions during classroom discussion and students' critical thinking. Once the lower categories have been satisfied; the higher the categories of questions, the more likely higher the students' critical thinking is. Further, the interview with teachers yielded the following: students have opportunities to demonstrate HOTS through prepared questions in the lesson guides and pre-assigned selections; some evidences of thinking critically include outputs, test results or performance; difficulties include students' discomfort with wait time, settling with one-word answers and the lack of motivation to read or answer and to solve the problems, teachers maintain motivation and have students read ahead; and lastly, to help develop more meaningful questions, use good materials that initiate discussion, set expectations, re-define and review lesson plans, and continue subject integration. Among the recommendations are for students to maximize their activities and to participate in the discussion; for teachers to give ample wait time and to continue to plan and design lessons which contain questions targeting the students' HOTS; the English Department to continue inclusion of planning of questions and sharing of best practices in meetings; the administrators to include more effective integration sessions, to organize seminar-workshops, refreshers and teacher trainings and lastly, the future researchers to look into other factors and other taxonomies and apply these in different subject areas.

Keywords: *critical thinking, categories of questions, higher order thinking skills, student responses*

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1. Introduction

With a new curriculum comes the challenge to adapt and adhere. The recently implemented K to 12 system poses a re-evaluation of teaching strategies, curriculum, and instruction to develop 21st century skills that would prepare students for real life experiences.

One of these 21st century skills, and likely one that drives the rest, is critical thinking. According to Halpern [1], the ability to think critically has always been vital and important for the citizens of the 21st century. However, the present generation needs two more years of education than the one that came before because the world is becoming increasingly technical and complex. This means development of more skills which would lead to the

selection, interpretation, digestion, learning, evaluating, and applying of relevant and credible information. If people cannot think intelligently about the countless issues that confront them, then they are in danger of having all the answers, but still not knowing what they mean. Knowing how to learn and knowing how to think clearly about the rapidly multiplying information that people must select from are the most important intellectual skills for the 21st century [1].

Aligned with the changes implemented in the curriculum and continuing its drive for quality education and excellence, Xavier University Junior High School has adapted the K-12 program as it is aligned to the institution's mission and vision which is;

"To develop conscientious servant leaders marked with excellence, enriched with Filipino culture and heritage, concerned with maintaining ecological balance and

employing a pedagogy that integrates Ignatian Spirituality in all phases of life, community, nation and the world. All of these contribute to forming men and women of competence, conscience and commitment in service of the Church, global community and the Filipino people in order to become a leading ASEAN university forming leaders of character by 2033 [2].”

The Grade 10 curriculum focuses on oral language, fluency, grammar and composition, vocabulary development, reading comprehension, attitude towards language, literacy and literature, study strategies, and viewing. The learners are expected to demonstrate communicative competence through his or her understanding of literature and other text types for a deeper appreciation of World Literature, including Philippine Literature. These are achieved through activities like public speaking, conflict resolution and socio-cultural research [3]. Aside from the given Department of Education curriculum, XUJHS has also formulated additional competencies which target the macro-skills in reading, writing, speaking, listening, viewing and researching.

The thrust of the K to 12 curriculum is to provide learners the opportunities to solve problems and evaluate ideas. Bro. Armin Luistro [4], Secretary of the Department of Education, stated that “We are making it a real learning experience for the students, meaning, it will be less on memorization and more encouraging of critical thinking.” Ronda [5].

Moreover, the Philippine Accrediting Association of Schools, Colleges and Universities (PAASCU) Survey Team that visited Xavier University Junior High School last 2015 recommended that teachers and the institution have to deepen knowledge subject matter through well-prepared questions and processing techniques and to help students generate meaning, conclusions and insights. They also recommended that teachers connect lessons to real-life situations and current social issues, and to develop in greater depth the students’ higher-order thinking skills.

Since critical thinking is an important aspect of the curriculum as it is a crucial part of Higher Order Thinking Skills (HOTS), there is a need to create programs and develop strategies to foster and improve it. The focus of this study is a feature of teaching that assesses and also improves one’s quality of thinking, and eventually, one’s quality of life – the art of questioning.

McComas & Abraham [6] challenge teachers to re-examine the quality and categories of classroom questions and “the first step in asking better questions is to identify the types of questions we are currently asking, why we are asking them, and finally what techniques can we utilize to improve the questioning that occurs in our classrooms.”

Asking quality questions is not just a means of assessing learning, but is also a means of self-discovery, self-evaluation and self-knowledge. Hence, it is very important to take a look at what questions teachers ask and what effect they have on the students’ critical thinking skills and responses.

Elder & Paul [7], suggests that thinking is driven by questions. Every field in any Sciences and Arts stays alive only to the extent that fresh questions are generated and taken seriously as the driving force in the process of

thinking. To think through or rethink anything, one must ask questions that stimulate thought.

Developing critical thinking is not a one-shot process and it takes time and constant, conscious implementation. Critical thinking activities ought to be integrated in the curriculum, and teachers must be well equipped to implement them.

In this light, this study analyzed the critical thinking skills and the categories of questions given to Grade 10 students of Xavier University Junior High School.

1.1. Statement of the Problem

This study attempted to determine the categories of questions and critical thinking of Grade 10 Students of Xavier University High School. Specifically, this study seeks to answer the following questions:

1. What is the distribution of the categories of questions based on Anderson and Krathwohl’s Revised Bloom’s Taxonomy:
2. What are the students’:
 - 2.1. Critical thinking skills
 - 2.1.1 Induction
 - 2.1.2 Credibility
 - 2.1.3 Deduction
 - 2.1.4 Assumption identification
 - 2.2. Interactions in terms of Student Talk
3. Is there a relationship between categories of questions during classroom discussion and students’ critical thinking?
4. What are the results of interview with teacher responses with regard to asking questions?

1.2. Literature Review

Thinking critically is a defense against a world of too much information and too many people trying to convince us, but it is more. Reasoning is what distinguishes us from beasts. Many of them can see better, can hear better, and are stronger. But they cannot plan, they cannot think through, they cannot discuss in the hopes of understanding better. [8]

What is critical thinking? According to Kurfiss, [9] “Critical thinking is a rational response to questions that cannot be answered definitively and for which all the relevant information may not be available. It is defined here as an investigation whose purpose is to explore a situation, phenomenon, question, or problem to arrive at a hypothesis or conclusion about it that integrates all available information and that can therefore be convincingly justified. In critical thinking, all assumptions are open to question, divergent views are aggressively sought, and the inquiry is not biased in favor of a particular outcome.”

Critical thinking helps citizens become more productive and live better lives. Facione [10] mentions;

“Teach people to make good decisions and you equip them to improve their own futures and become contributing members of society, rather than burdens on society. Becoming educated and practicing good judgment does not absolutely guarantee a life of happiness, virtue, or economic success, but it surely

offers a better chance at those things. And it is clearly better than enduring the consequences of making bad decisions and better than burdening friends, family, and all the rest of us with the unwanted and avoidable consequences of those poor choices [10]"

Lifelong learning is the target of education, to be able to live better guided lives through critical thinking. Who else better guide the learners but their teachers? It is no wonder then that there is much emphasis on the significant roles of the teacher and the methods of questions employed as it helps develop critical thinking. Questioning and discussion techniques are effective instructional methods that develop critical thinking and problem solving skills [11].

Cohen [12] also emphasizes that the essence of the (critical thinking) theory is that critical thinking skill is exemplified by asking questions about alternative possibilities in order to achieve some objective. Asking and answering questions is a skill of dialogue. The critical thinking skill is exemplified by asking and answering critical questions about alternative possible states of affairs, to the extent that such questioning is likely to increase the reliability of the overall activity in achieving its purpose.

It is through asking questions that people are able to identify alternate possibilities, choices and decisions to be able to meet an objective or end result. If critical questions are asked, the more the answers are thought through. What are these questions? According to the Browne & Keeley [4], questions which lead to critical thinking should lead to a conclusion, be asking the 'why' of things and should not be ambiguous.

Thus, listening and reading critically—that is, reacting with systematic evaluation to what one has heard and read—requires a set of skills and attitudes. These skills and attitudes are built around a series of related critical questions. These critical questions provide a stimulus and direction for critical thinking; they move people forward toward a continual, ongoing search for better opinions, decisions, or judgments. [4]

Educators in every discipline value critical thinking skills. Although these skills are valued, they are seldom explicitly taught to students. Faculty members with intimate familiarity of questions and methods of disciplines would seem to put them in an ideal position to help students which such skills. [9]

Teachers construct the lesson and also plan the instruction. The asking of questions is a very crucial part of developing critical thinking skills. There is a shift from content information (convergent) questions to value and judgment based (divergent) questions. González [13] did a study on categories of questions using Bloom's Taxonomy and concluded that questions need to be carefully planned in order to move learning forward. Like any other good teaching practice developing questioning skills needs careful practice as well as viewing the teaching and learning process as a whole, where teachers understand that their teaching style will determine the way students learn.

But the challenge of developing critical thinking is not only addressed to the teachers, but to the school's administration, and school's building blocks as well – the faculty and staff. Shelley [14], in her study about the role

of critical thinking in information literacy, mentions that there must exist a desire on the part of an institution's faculty to integrate critical thinking and information literacy standards into a curriculum. However, those from both libraries and broader educational curriculums who are invested in student achievement agree that collaboration is essential to improve students' critical thinking dispositions and abilities. The common goals of faculty and librarians in building students' higher-order thinking skills are evident, yet many institutions fail to merge the necessary resources and expertise into a cohesive strategy. Once a model has been developed or adopted successfully in practice, however, the result of having students making reasoned decisions by asking appropriate questions effectively saves time and resources because then the "problem" is being treated instead of the "symptom." Both librarians and educational practitioners hold equal responsibility in developing cross curricular strategies to help students better understand not only how to interpret information, but to understand the process of such interpretation.

Going deeper into classroom interaction and questioning, Quinto [15] examined the verbal interactions in English classes and its implications to student outcomes. She found out that teacher talk often dominates classroom discussion, which means that students have less chance to answer or ask questions and some important techniques such as wait time and redirecting were not maximized and that most questions asked in the classroom are in the lower categories of Anderson and Krathwohl's Revised Bloom's Taxonomy. It's also worth mentioning that students whose teachers are more on direct teacher influence, meaning that they have more interactions such as giving lectures, giving directions or justifying authority with the students have a more favorable attitude towards the subject in general and have higher critical thinking skills.

The more interactions and questions are targeted to the higher-order thinking skills, the more critical thinking is developed. This is also what Gallagher and Aschner [16] concluded in their research which states that there is a high correlation with question asking and the development of higher order thinking skills. They have also proposed a model for asking questions, patterned after Bloom's Taxonomy and is targeted at the respondents' Higher Order Thinking Skills (HOTS).

The challenge is not only asking questions in the classroom but, more importantly, it lies in asking questions that target higher order thinking skills (HOTS) and, eventually, critical thinking.

2. Methodology

2.1. Research Design

This study employed descriptive research. Descriptive research tests hypotheses and answers questions. According to Raagas [17], descriptive research describes and interprets what is. It is concerned with conditions of relationships that exist, opinions that are held, processes that are going on, effects that are evident, or trends that are developing. It is primarily concerned with the present

although it often considers past events and influences as they relate to current conditions.

2.2. Research Setting

This study was conducted at Xavier University Junior High School. The school is located at El Camino Real, Pueblo de Oro, Cagayan de Oro City.

2.3. Sampling Procedure

This study used purposive sampling. The researcher observed the Grade 10 level since they have been in XUJHS the longest, thus they are more exposed to the manner of questioning and classroom instructions. Out of the 10 sections in the Grade 10 level, 2 sections were selected. Each class has 45 members with students aged 14-15. These sections were selected based on class schedule and availability of the researcher during the class hours. The researcher selected general section classes for observation, to assure fairness in data gathering. English classes are recited four times a week, for 55 minutes per session. Two teachers have been observed, both handling Grade 10 sections only. These two teachers are the only ones handling all of the Grade 10 sections. Three classroom observations have been done per teacher, one unannounced and two announced observations. Once the sections had been selected and the schedule had been settled; the researcher met with the teacher-respondents and discussed with them the purpose of the study and the extent of their involvement in the study. They were given time to ask questions and address their concerns about their involvement. Teacher-participants were assured that the data gathered and the results will not, in any way, affect their evaluation.

Similarly, the researcher conducted a brief orientation with the student-respondents together with their corresponding English teachers about the study and the extent of their involvement. Students were given time to ask questions and inquire about their involvement. The participants were assured that their involvement was voluntary and that they were free to withdraw consent at any time and to withdraw any unprocessed data previously supplied. They are also informed that the results of the study will not affect their rating in their achievement and effort mark. Both teacher-participants and student participants were informed that there are no direct benefits for them taking part in this project. However, the findings from this project may help create a better understanding of the role of the categories of questions in critical thinking, and will pave the way in improving assessment and classroom instruction.

2.4. Data Gathering Procedure

The data was gathered through observation and recording. The researcher wrote a letter to the Principal for permission to gather data. When approved, the letter was given to the department chair to ask for permission and to schedule the said observations. The English teachers were then given a letter of consent and a letter which informed them of the schedule and purpose of the observation. A Letter of Consent was also given to the parents of the respondents and the respondents themselves. The records

of this study will be kept private. Participants will not be identified in any publications. The participants were given pseudonyms for identification even in the resulting publications. Research documents, video and audio recordings are stored securely and will only be accessed by the researcher. All information collected are kept strictly confidential.

Confidentiality, privacy and anonymity were ensured in the collection, storage and publication of research material. The data generated in the course of the research are kept securely in paper or electronic form for a period of ten years after the completion of this research project. Only the researcher can access and has a copy of the unprocessed data which includes video and audio recordings, teacher-participants and student-participant names and Cornell Critical Thinking Test X results.

The observations ran for two quarters, and teachers were observed three times throughout the two quarters. There were announced and unannounced classroom observations to minimize bias in delivery of questions. A handheld camera and a stand-by DSLR camera were used in recording the classroom interactions.

Test-taking was done in one day, in two batches. Each batch comprised of 30 students, 30 from each class, with a total of 60 respondents taking the critical thinking test.

In observing, the researcher remained a non-participant and recorded the data, which was transcribed and which not only contain the teachers' questions, but the students' responses as well. Questions were classified according to Anderson and Krathwohl's Revised Bloom's Taxonomy [18] which are: Remembering, Understanding, Applying, Analyzing, Evaluating and Creating

Upon conclusion of the research, the results of the study were forwarded through printed copies to the department chairperson, Assistant Principal for Academics and School Principal of Xavier University. The student-participants were not informed of the findings of the study, nor of their critical thinking skills test results. However, the teacher-participants were given a printed copy of the findings of the study.

2.5. Research Instruments

The Cornell Critical Thinking Text – Level X. The test was developed by Cornell university professors, Robert Ennis, Jason Millman and Thomas Tomko and measures four critical thinking skills: induction, credibility, deduction and assumption identification; thus promoting 21st century skills. The Cornell Critical Thinking Text – Level X develops a clear picture of students' critical thinking skills and is published by Critical Thinking Press and Software.

2.6. Validity and Reliability

The Cornell Critical Thinking Test – Level X is a standardized, norm-referenced test and has a reliability index of 0.90.

2.7. Statistical Treatment

Data from the video-recorded interactions, categories of questions, critical thinking skills and student talks are

analyzed using simple descriptive measures such as frequencies, percentages, means and standard deviations.

Frequencies and their respective percentages for every category are computed. The mean is also computed. The data are summarized into a general table showing the number of questions asked and its percentage distribution.

For test of correlation between categories of questions and critical thinking test scores, Pearson-R Correlation Coefficient is used.

3. Results and Discussion

3.1. Findings

1. What is the distribution of the categories of questions based on Anderson and Krathwohl's Revised Bloom's Taxonomy:

Table 1. Summary of the Distribution of Categories of Questions Based on Anderson and Krathwohl's Revised Bloom's Taxonomy

	CLASS A	%	CLASS B	%	Total # of Questions	%
Remembering	26	47.27	72	62.60	98	57.65
Understanding	7	12.73	29	25.22	36	21.18
Applying	9	16.36	3	2.60	12	7.06
Analyzing	1	1.82	1	0.87	2	1.18
Evaluating	12	21.82	8	6.96	20	11.76
Creating	0	0	2	1.73	2	1.18
Total Number of Questions	55	100	115	100	170	100

As revealed in [Table 1](#), the teachers asked a total of ninety-eight (98) or 57.65% of the total Remembering questions, a total of thirty-six (36) or 21.18% of the total Understanding questions, a total of twelve (12) or 7.06%, of the total Applying questions, only two (2) or 1.18% of the total Analyzing questions, twenty (20) or 11.76% of the total Evaluating questions and lastly, only two (2) or 1.18% of the total Creating questions. The data shows us that there are less HOTS questions asked, with most of the questions falling under Remembering, which is 57.67%, and with the least of the questions falling under Analyzing

and Creating, with only 1.18% per category. The three Higher Order Thinking skills have the least questions delivered.

Anderson and Krathwohl [18] as mentioned by Quinto [15] explain that higher categories of questions empower teachers to engage students to active learning. When teachers dwell on lower categories of questioning, students' involvement in classroom (verbal) interactions is limited because these types of questioning do not encourage the students to think more and to participate actively.

But this does not mean that the Remembering questions are less important or should be discouraged. King et al, [19], discusses the importance of knowledge questions in the classroom, stating that students must have sufficient prior knowledge to enable them to use their higher order thinking skills in answering questions or performing tasks. Psychological research also suggests that skills taught in one domain can generalize to others. Over long periods of time, individuals develop higher order skills (intellectual abilities) that apply to the solutions of a broad spectrum of complex problems. Knowledge is, after all, the foundation of thought.

A balance between the categories of questions asked lead students to think critically as their needs in the lower categories are met, and at the same time, they are challenged to create, analyze, judge and evaluate through the higher categories.

2. What are the students'

2.1. Critical thinking skills

Looking at their overall scores, there was one (1) student or 1.67% of the total test takers fall under the Superior category, while thirty-eight (38) students or 55% of the total test takers fall under the Average category, whereas twelve (12) students or 43.33% of the total test takers fall under the Fair category and none of the students falls under the Poor category.

The students also had a mean score of 37.95 with a standard deviation of 7.47. This shows that students are in the Average category, which means that they can think critically, although there is an opportunity to improve and sharpen their Critical Thinking Skills, especially in the items under Credibility, Deduction and Assumption Identification.

Table 2. Overall Distribution of Students by Critical Thinking Skills

Range	Descriptions	Class A		Class B		Overall	
		Frequency	%	Frequency	%	Frequency	%
55-71	Superior	1	3.33	0	0	1	1.67
37-54	Average	16	53.33	17	56.67	33	55.00
19-36	Fair	13	43.33	13	43.33	26	43.33
1-18	Poor	0	0	0	0	0	0
	Total	30	30	100	30	60	100

Overall mean score = 37.95; Average SD= 7.47

Indicators	Mean	Description
A. Induction	14.88	Average
B. Credibility	11.32	Fair
C. Deduction	8.1	Fair
D. Assumption Identification	3.65	Fair

This is indeed a challenge, and fortunately Critical Thinking is one of the focuses of the new curriculum. It is essential to create critical thinkers and to ask more questions which cater to the students' HOTS. As Kurfiss [9] mentions, the importance critical thinking plays in the education process depends upon one's philosophic belief in the purpose of education. If education is only to teach basic facts, than critical thinking plays only a minor role and rote learning is sufficient. If, however, the role of education is to develop greater reasoning skill in order to cope with and make decisions about life and society, then critical thinking plays a central position, since reasoning is impossible without critical thinking. Knowing the purpose of education, especially in the K-12 curriculum- is the latter; there should be a heightened sense of responsibility to consciously develop Critical Thinking Skills.

2.2. Interactions in terms of Student Talk

Table 3. Summary of Student Interactions in Terms of Student Talk

	Class A	%	Class B	%	Total	%
Brief Response	33	55	42	34.43	75	41.21
Covert/ Mumbled Response	9	15	19	15.57	28	15.38
Extended Response	7	11.67	35	28.69	42	23.08
Silence	8	13.33	24	19.67	32	17.58
Brief Initiate	1	1.67	0	0	1	0.55
Covert or mumbled initiate	2	3.33	2	1.64	4	2.20
Extended Initiate	0	0	0	0	0	0.00
Total Number of Responses	60	100	122	100	182	100

In sum, for both Class A and Class B, Student Responses had a total of seventy-five (75) Brief Responses which comprises 41.21% of the total responses, twenty-eight (28) were Covert/ Mumbled Responses, which comprises 15.38% of the total responses, whereas there were forty-two (42) Extended Responses which makes up 23.08% of the total responses and there were thirty-two (32) instances of Silence comprising 17.58% of the total responses. For Student Initiates, there was only one (1) Brief Initiate comprising 0.55% of the total responses, two (2) Covert or Mumbled Initiates comprising 2.20% of the total responses and there were no Extended Initiates for both classes.

Based on the data, the percentage of the students' responses are not in line with the teachers' questions. There are instances when teachers ask HOTS questions, but students only remain silent and do not participate. Students are less likely to initiate interactions, and they rarely do. There might be several factors to this, like motivation, wait time, or even the way questions are structured, but it is imperative that students be more comfortable in answering questions and expressing their own inquiries.

Aside from teacher questioning, student responses and initiates are just as important to learning. Learning is not a one-way process, and it involves classroom interaction. If this is such, learners become active participants of and to the learning process. As Fisher et al [20] state;

“Over time, educators realized that students had to use the language if they were to become better educated. As a result, well-intentioned educators called on individual

students to respond to questions. Teachers expected them to use academic language in their individual responses, and as students spoke, teachers would assess their knowledge.”

This is supported by Kumpulainen and Wrey [21] who state that students taking an active role in the classroom setting are provided with many opportunities to take initiatives and an active role in initiating and organizing the topics to practice various social skills as they worked out problems together and co-constructed knowledge.

The burden and challenge of developing Critical Thinking Skills do not fall entirely on the shoulders of the educators, but also on students who are expected to respond to the different activities and questions that their teachers provide. The challenge is also to create the community that Kumpulainen and Wrey [21] suggest, a community of learners that do not see their teacher as the knowledge-giving authority but instead presented their own ideas and also questioned the assumptions of the teacher.

3. Is there a relationship between teachers' categories of questions during classroom discussion and students' critical thinking?

Table 4. Test of Significant Relationship Between Categories of Questions and Critical Thinking Skills Through Pearson R Correlation

Independent Variable	Dependent Variable	R	P-value
Categories of Questions	Critical Thinking Skills	0.657	0.0349

Based from the table, using categories of questions as the independent variable and the critical thinking skills as the dependent variable, the Pearson R Correlation coefficient (r) with the value of 0.657, shows that there is a positive correlation between the categories of questions and critical thinking skills – that is, the critical thinking skills increase as the categories of questions increase. The relationship is significant, with a P-value of 0.0349.

The categories of questions lead the students to think critically because it activates students' schema, further expands it and also presents new ways of thinking, and even thinking about thinking, or metacognition. As Elder & Paul [7] suggest, thinking is driven by questions. To think through or rethink anything, one must ask questions that stimulate thought.

Going back to Piaget's theory of adaptation, intellectual growth is seen as a process of adaptation (adjustment) to the world. This happens through assimilation, wherein people translate incoming information into a form they can understand; accommodation wherein people adapt current knowledge structures in response to new experience and through equilibration, where people balance assimilation and accommodation to create stable understanding.

What happens when teachers ask questions is that they present new ways of understanding information, and students assimilate, which means they use their own understanding of the information to come up with answers, and ultimately, they accommodate. Accommodation means that if teachers provide them with the opportunities to create new experiences through asking questions and providing them with more activities, the students make the

information- the learning, their own. This is how they are led to think critically.

Cohen [12] also emphasizes that the essence of the (critical thinking) theory is that critical thinking skill is exemplified by asking questions about alternative possibilities in order to achieve some objective. Asking and answering questions is a skill of dialogue. The critical thinking skill is exemplified by asking and answering critical questions about alternative possible states of affairs, to the extent that such questioning is likely to increase the reliability of the overall activity in achieving its purpose.

In sum, the more questions are targeted to the higher-order thinking skills, the more critical thinking is developed. This is supported by a study done by Gallagher and Aschner [16], which concluded that there is a high correlation with question asking and the development of higher order thinking skills.

Educators and stakeholders play a vital role in developing critical thinking. Through classroom instruction and effective questioning methods, students become more exposed and engaged critical thinkers.

4. What are the results of interview with teacher responses with regard to asking questions?

Two teachers were interviewed employing the questionnaire. They were asked about their experiences related to classroom questioning and critical thinking.

The teachers' responses on how they have given their students opportunities to demonstrate HOTS or Higher Order Thinking Skills revolve around the preparations they have taken to ensure that students are aware of the content matter, especially literature lessons. The questions in the lesson guides, or the lesson plans are prepared and pre-planned. The students are required to actually read and venture into the literary selection beforehand, even before the discussion. The teachers then give the comprehension questions ahead, so the students get to answer the comprehension questions before they come to class. The questions usually consist of different categories, from the knowledge questions, to comprehension, and then eventually to analysis. In the lessons itself, the teachers' questions are based on the competencies and consist of content, content-focused reflection and value focused reflection questions. These questions have already been prepared beforehand in the lesson plan. Series of follow-up questions and probing questions are also asked.

The teachers also include the questions as part of the nexus and part of the processing, and are included in the beginning and at the end of the class. Questions asked in class also help the students find out what their classmates think, especially when questions are answered orally or out loud. The teachers also emphasized how important it is not to judge students' answers and encourage students to participate actively.

The Grade 10 teachers also cited some evidences which show that students are thinking critically. Some of these evidences include their outputs or performance tasks which are prepared and constructed inside the classroom. How students think critically can also be gleaned from their answers to process questions. In these questions, students get to give reasons and give examples. The exam is also structured in a way that shows understanding through providing the students with selections and

questions which let them examine the given text and relate them to real life and their own perceptions. In preparation for this exam, teachers give students guided generalization, which is a structured like the examinations, but with further questions to help students make connections. Another evidence of Critical Thinking, according to the Grade 10 teachers, are the student's' writing skills, for instance, coming up with thesis statements and arguments. They can also reason well, explain, elaborate and express themselves successfully.

However, as Brookhart [22] points out that, although performance tasks are supposed to cater to HOTS, students can still perform the performance tasks without using higher-order thinking. Of course, what expanse and what kind of higher-order thinking should be essential on a classroom assessment depend on the particular learning goals to be assessed. To assure that performance tasks target the HOTS, the goals and objectives of the activities have to be revisited and there has to be a common understanding of what skills the activity targets and what HOTS are developed.

The Grade 10 teachers also expressed some of their difficulties they encountered in asking questions. The teachers find it difficult to ask questions since some of the students feel uncomfortable when the teachers wait for them to answer. They are uncomfortable of waiting time. Students also tend to settle with one-word answers and would need probing before they explain further, and they usually just agree with the teachers' discussion, without adding anything more or even asking questions. The teachers also express that discussions take time, take patience, and take preparations which is why they assign the reading materials ahead of time, sometimes as a reading assignment, for the students to be able to prepare. Another problem is the lack of motivation to answer or even read. To solve this, the teachers give bonus points for the oral recitations and the writing activities, as this would train them to answer and would hopefully would help them find enjoyment in coming up with answers. The Grade 10 teachers also shared that sometimes the students get lazy and use their other activities in other subjects as an excuse not to do their assignment, or that they can't focus or they're pre-occupied. Students also have a tendency to misunderstand instructions, so the teachers make it a point to repeat instructions and make sure students understand instructions before they proceed with the activities.

Teachers also shared how they solve the problems previously mentioned. They suggest that teachers sustain motivation through giving the students varied materials aside from the readings which are provided - materials that would really require them to share, express their ideas or thoughts. Teachers also make sure that students have read ahead, that the students are prepared to discuss the lessons. The teachers also make reading into an active tool because students have to do something about it.

To help develop more meaningful questions, the Grade 10 teachers suggest that teachers use good materials that initiate discussion and that would really tickle their imagination. It is also possible to help students by letting them know what to expect.

Students' critical thinking skills can also be developed if there is less worksheet which is not productive and

meaningful and instead lets the students answer more questions instead helps the students more. This is supported by Brookheart [22] who says that the reason why recall-level test questions or activities are so predominant is that they are the easiest kind to construct. They are also the easiest kind of question to ask off the top of the head in class. The same thing happens on classroom tests. Teachers who come up with tests quickly, or who use published tests without revising them to see what thinking skills are needed, are likely to end up asking fewer higher-order thinking questions than they planned and intended.

The Grade 10 teachers also bring up re-defining the lesson plan as part of the curriculum and going back to asking “What do you really want to ask?” Planning the questions ahead and preparing the guided questions really help in understanding the reading material and help the lesson progress more meaningfully. We don’t expect the students to know immediately how it is to be critical, but if we just give them the right skills, the right activities, the right opportunities to explore, then they become more critical and hopefully we also encourage them to use everything that they have learned to other, or across the curriculum. Once again, Brookhart [22] mentions that teachers who do not exactly plan classroom discussion questions earlier on to activate particular higher-order thinking skills, but rather ask impromptu questions “on their feet,” are mostly going to ask recall or remembering questions. It is therefore imperative for teachers to ask prepared questions reflected in the lesson plan than just completely relying on what will come up in the discussion points.

There is also an observation that students write differently for different subjects, which is a problem since there must be consistency to achieve mastery. The school has already given a way to solve this through integration among subjects; however, there is still a need to align the subject goals and to further talk about the objectives and way of integration.

Developing Critical Thinking is indeed very challenging, but is essential, nonetheless. Hooks [23] further emphasizes the importance of Critical Thinking as it is the intensification of self-awareness which heightens the capacity to live fully and well. There is also the presence of wisdom “when we make a commitment to become critical thinkers, we are already making a choice that places us in opposition to any system of education or culture that would have us be passive recipients of ways of knowing. As critical thinkers, we are to think for ourselves and be able to take action on behalf of ourselves. The insistence on self-responsibility is vital practical wisdom.”

The new curriculum comes with new challenges, and teachers take these challenges head on every time. As earlier stated, it is through asking questions that people are able to identify alternate possibilities, choices and decisions to be able to meet an objective or end result. If critical questions are asked, the more the answers are thought through. As Krasten [24] states, every educator is in a position to teach students how to gather information, evaluate it, screen out distractions and think for themselves. Because critical thinking is so important, some believe that every educator has not only the opportunities, but also the obligation to incorporate critical

thinking into his or her subject area. This helps students evaluate prepackaged conclusions and clears a path for original thoughts.

There is no denying that the English subject makes a particular impact in developing Critical Thinking Skills. As Hakes [25] reiterates what logistician Abelard says—that an understanding of language lay at the root of all intellectual endeavor. The composition of prose and verse (rhetoric) was a necessary step to a deeper understanding of logic. Indeed (...) rhetoric is the bridge to the mountain of logic. Hence, it is the English teachers’ job to lead students to this bridge and help them cross it.

4. Summary

This study attempted to determine the categories of questions and critical thinking skills of Grade 10 students from Xavier University Junior High School. It sought to find out the categories of questions based on Anderson and Krathwohl’s Revised Bloom’s Taxonomy. This is followed by finding out the students’ Critical Thinking Skills under Induction, Credibility, Deduction and Assumption identification. The researcher also considered the students’ interactions in terms of Student Talk. The relationship between teachers’ categories of questions during classroom discussion and students’ critical thinking was investigated and discussed. The interview with teachers with regard to asking questions was also given.

The descriptive type of research was employed in this study. This study was conducted at Xavier University Junior High School located in El Camino Real, Pueblo de Oro, Cagayan de Oro City. This study used purposive sampling and the data was gathered through means of observation and recording which included the teachers’ questions in the classroom, the students’ responses, the students’ critical thinking test results and the interview sessions with the teachers. The questions which were observed were then classified according to Anderson and Krathwohl’s Revised taxonomy.

To find the answers to the problems given, the following statistical instruments were used: frequencies and their respective percentages; mean and standard deviation, and Pearson-R Correlation Coefficient was employed to test the relationship between the categories of questions and the students’ critical thinking skills.

5. Conclusions and Implications

Based on the findings of the study, the following conclusions and implications are made:

Lower Order Thinking Skills questions are asked more often than Higher Order Thinking Skills questions in the classroom since the activities observed required these LOTS questions. There might have been unobserved sessions which catered to the HOTS, however, opportunities to ask HOTS are always present and could be added some more in the discussion and activities. Students need to be exposed to these skills since these are necessary not only in academics, but also in everyday living, and in self-actualization.

As a result of the teachers asking questions which lean more to LOTS, students' responses were also limited to Brief Responses, Covert or Mumbled responses, or even Silence only. However, even if there were opportunities presented which could have warranted further responses, students still kept quiet. There could have been many reasons for the students' limited responses. These include their disposition, motivation or even background since they are Bridging Program products; they are younger than the usual students for that grade level, which point to student readiness.

King et al, [19] further discuss the importance of student readiness. Citing Piaget, the developmental stages are key to cognitive development. School-age and adolescent children develop operational thinking and the logical and systematic manipulation of symbols. As adolescents move into adulthood, they develop skills such as logical use of symbols related to abstract concepts, scientific reasoning, and hypothesis testing. These skills are the foundation for problem solving, self-reflection, and critical reasoning. Recent research shows that children perform certain tasks earlier than Piaget claimed, vary in how rapidly they develop cognitively, and seem to be in transition longer than in the cognitive development stages. However, research also shows that biological development, together with instructional techniques, affects the rate of movement from one stage of learning to the next.

As stated earlier, in Piaget's 'Origins of the Intelligence of the Child' (1936), he suggests that children construct their own knowledge in response to their experiences. There might be a possibility that the students cannot assimilate or accommodate that schema since they are not ready or possibly do not have that kind of prior knowledge.

It is possible for students to be unprepared to take on several learning tasks which might be higher than their current cognitive state. This ultimately affects critical thinking. This can be seen through the results of their Cornell Critical Thinking Test, wherein students' critical thinking skills are only scored at average, and are even fall in Fair in skills such as Deduction, Credibility and Assumption identification, all of which are necessary skills to be equipped by 21st century learners.

There is a significant relationship between the categories of questions and the students' critical thinking skills. So if teachers ask more questions which cater to HOTS, and if students become more invested in answering questions and participate through responding more, they can develop their critical thinking skills. The challenge is in motivating the students to read more and be more participative in their classroom discussions, and in preparing lessons and questions which target critical thinking skills as it becomes, not separate, but part of the lesson itself.

Aside from the categories of questions asked, how students interact with each other and their peers and how they perceive learning also affect the development of Critical Thinking Skills. Terezini [26] cites three kinds of instructor-influenced classroom interactions were consistently and positively related to gains in critical thinking. The extent to which faculty members encouraged, praised, or used student ideas; the amount and cognitive level of student participation in class, and the amount of interaction among the students in a course. A growing body of evidence indicates a student's level of

involvement both in and outside the classroom may have important effects on various forms of cognitive development, including critical thinking ability.

Students' involvement and participation are important as their response to the questions determine what they understand and how they understand. Questions may facilitate in the transition or movement of learning from one stage to another; however, student readiness and participation also play a vital role in developing critical thinking and higher order thinking skills.

6. Recommendations

Based on the given findings and conclusions and implications of the study, the following recommendations are given;

Students are encouraged to make the most out of their activities and to actively participate in the discussion. Their responses drive the dialogue, and to foster critical thinking, the lessons should have a healthy discussion. Students are recommended to expound and explain their answers, interact more with their peers and teachers, and ask more questions.

Teachers are encouraged to continue planning and designing lessons and instruction which contain questions which cater to the students' higher order thinking skills (HOTS) and to begin asking HOTS questions as early as Grade 7. Teachers are also encouraged to continue preparing thoroughly for their classes and assessment and to give ample wait time for their students to answer.

The English Department is encouraged to place a primer on the quality of classroom questions, and to continue planning of questions, specifically in the QUEST meetings. The department is also recommended to allot time for teachers to share their best practices in classroom questioning and instruction during formal or informal meetings.

Administrators of Xavier University Junior High School are encouraged to help strengthen teachers' quality of questions through the more programs and activities across different subject areas, especially through more effective integration sessions, to improve the students' thinking skills. The administrators are also recommended to organize seminar-workshops, refreshers and further teacher trainings in the art of questioning, especially for new teachers.

The future researchers are recommended to look into other factors that may affect students' critical thinking skills and the impact of teachers' categories of questions, such as the length of wait time, the lesson planning phase and students' motivation. Future researchers may also consider using other taxonomies of higher order thinking skills. Researchers may also apply these categories of questions in different subject areas i.e. Math, Science and Social Studies. Researchers might also consider the occurrence of questions and answers within a time interval.

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