

## Thinking Skills of ABM Senior High School Students of Philippine State University

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### Abstract

This study aims to determine the level of thinking skills of Accountancy and Business Management Senior High School Students of Philippine State University and tries to find out the relationship between thinking skills level and the age and sex of the respondents. The study used the descriptive-correlational method of research. The methods involved range from the survey which describes the status quo, the correlation study which investigates the relationship between variables, to developmental studies which seek to determine changes overtime. The descriptive method was utilized to describe the thinking skills level of the ABM Senior high school students. The correlation was employed in investigating the relationship between the thinking skills level of the respondents and their demographic profile limited only to age and sex. The researchers used a Test questionnaire in gathering the data needed to evaluate the thinking skills level of the respondents. Based on the findings, it was concluded that most of the respondents acquired low level thinking skills in Anderson and Krathwohl Taxonomy. It was also concluded that there was no significant relationship between the level of thinking skills of the respondents and their demographic profile. With the conclusions, it was recommended that school administrators may initiate faculty enrichment program to enhance teaching strategies geared towards the development of thinking skills. Teachers should expose students to different skills activities which will help the students to develop their thinking skills.

**Keywords:** Polytechnic University of the Philippines, Thinking Skills, Anderson, Krathwohl's Taxonomy, and ABM

### Introduction

The implementation of the K-12 Program or Kindergarten and 12 years of basic education is one of the recent changes in the Philippine Education aiming to advance the competencies of Filipino graduates. Training for critical thinking has become an increasing focus of the K-12 Education (DepEd K-12 Curriculum Guide, 2012). Two years has been added in Secondary education which is address as Senior High School.

Thinking skills has become a generic phase used to encompass many processes involved in learning and problem-solving. Gough (1991) said that in today's information age, thinking skills are viewed as crucial for educated persons to cope with the rapidly changing world. Many educators believe that knowledge will not be as important as tomorrow's workers and citizens as the ability to learn and make sense of new information.

Most of a person's thinking is develop informally as he engages in both every day and school activities. To develop thinking skills means to design learning so that students will think

more skillfully to engage them in better quality thinking. Thus, thinking skills serve as a tool to help students go beyond their acquired knowledge and for deep understanding to apply ideas, generate more possibilities, make their own decision, and to evaluate their own progress. Beyth-Maromet et. al. (1987) underscores this point. They noted that thinking skills are necessary tools in society characterized by rapid change, many alternative of actions, and numerous individual and collective choices and decisions.

There is a renewed awareness that, although information and memory provide a “refrigerator in which to stock of meanings for future use” it is judgment that “and adopts the one to be used in emergency...” (Dewey,1933). Complex real-life problems often demand complex situations which are obtained through higher level thinking process. Thus, teaching higher order thinking provides students with relevant life skills and offers them and added benefit of helping them improve their content knowledge, lower order thinking skills, and self-esteem (Devries & Kohlberg, 1987; McDavitt 1993; Son & Vansickle, 1993)

The level of thinking cannot be unmeshed from the levels of learning. They involve interdependent, multiple components, and levels. Whether or not thinking can be learned without subject matter context is only a theoretical point. Students learn content in both community and school experiences. Thus, the level of thinking depends upon the context with a real-world situation, offering multiple variables to challenge thinking processes.

This study aims to determine the level of thinking skills of Accountancy and Business Management Senior High School Students of the Polytechnic University of the Philippines and tries to find out the relationship of thinking skills level, the age and sex of the respondents. This problem is relevant to the students, given the fact that the path they have chosen, thinking skills is much necessary for them to acquire and develop. ABM is connected to Mathematics subject in which it needs deep understanding and analysis.

### **Objectives**

This study aims to determine the level of thinking skills of Accountancy and Business Management Senior High School Students of Polytechnic University of the Philippines in relation to their demographic profile.

Specifically, it seeks to identify the following:

1. the profile of the respondents in terms of:
  - a. age;
  - b. sex;
2. the level of Thinking Skills of the respondents in terms of:
  - a. Remembering;
  - b. Understanding;
  - c. Applying;
  - d. Analyzing;
  - e. Evaluating;
  - f. Creating; and
3. the significant relationship between the Level of Thinking Skills of the respondents and their profile.

### **Methodology**

The study used the descriptive-correlational method of research. According to Key (1997), descriptive research is used to obtain information concerning the current status of the phenomena to describe “what exists” with respect to variables or conditions in a situation. The methods involved

range from the survey which describes the status quo, the correlation study which investigates the relationship between variables, to developmental studies which seek to determine changes overtime. The descriptive was utilized to describe the Thinking skills level of the ABM Senior high students.

“A correlation is simply defined as a relationship between two variables. The simple definition was the basis of several statistical tests that result in a correlation, defined as a numerical representation of the strength and direction of a relationship” (Kowalczyk, 2015 as cited in Go et. al, 2015). The correlation was employed in investigating the relationship between the Thinking Skills Level of the respondents and their demographic profile limited only to age and sex.

The respondents for the survey were the Senior High School Students of a Philippine state university who are enrolled in the Accountancy and Business Management or the ABM strand of the K-12 Program for school year 2016-2017. The respondents are drawn from all 28 sections. There are 1211 ABM Senior High School Students in the Polytechnic University of the Philippines enrolled in the school year 2016-2017. The researchers obtained 30% of the total population which resulted to a sample size of 363. By using the Slovene’s formula, the researchers get a sample size of 300 but the researchers use the 30% instead of 20% or the Slovene’s formula because it is in the midst of 50% and to make it more accurate.

The researchers use a test questionnaire in gathering the data needed to evaluate the thinking skills level of the respondents. The test questionnaire is composed of 3 parts. The first part is the demographic profile of the respondents, the second part is composed of 25 multiple choice questions to evaluate the thinking skills level of the respondents in terms remembering, understanding, applying, analyzing, and evaluating, and the third part is composed of 5-item questions which the respondents need to solve.

## **Results and Discussion**

This presents the findings of the study. It includes the demographic profile of ABM Senior High School Students and their level of Thinking Skills.

### ***Profile of the respondents***

In terms of age, 225 or 61.98% are 17-year-old; 119 or 32.78 % of the respondents are 16-year-old and below; and 19 or 5.23% are 18-year-old and above. The majority of the respondents of the study are 17-year-old. In the frequency distribution of the respondents according to sex, 281 or 77.41% of the respondents are female and 82 or 22.59% of the respondents are male. Thus, the majority of the respondents of the study are female.

### ***The Level of Thinking Skills of the Respondents***

#### ***In Terms of Age***

##### ***Level of Remembering Skills of Students in Terms of Age***

In terms of Remembering when grouped by aged, from the 363 respondents, 119 are 16-year-old. From the 119, 71 or 19.6% have scored 2-3 in the Thinking Skills Assessment, 28 or 7.7% have scored 1 and below and 20 or 5.5% have scored 4 and above with the computed mean of 2.11 and is interpreted as average level thinking skills. Furthermore, out from the 225 respondents aged 17, 136 or 37.5% have scored 2-3, 64 or 17.6% have scored 1 and below and 25 or 6.9% have scored 4 and above with the mean of 2.18 and is interpreted as average level thinking skills. As for 19 of the respondents aged 18-year-old and above, which 10 or 2.8% have scored 2-3, 5 or 1.4% have scored 1 and below and 4 or 1.1% have scored 4 and above with the mean of 2.26 which is also average thinking skills level.

##### ***Level of Understanding Skills of Students in Terms of Age***

In terms of understanding when grouped by age, among the 16-year-old respondents, 98 or 27% have scored 1 and below in the Thinking Skills Assessment and 21 or 5.8% have scored 2-3

while none have scored 4 and above. It has a computed mean of 0.93 which is interpreted as low level thinking skills. Among the respondents aged 17, 179 or 49.3% have scored 1 and below, 45 or 12.4% obtained 2-3 and only 1 has scored 4 and above with the computed mean of 0.98 and its verbal interpretation is low level thinking skills. Among the 19 respondents aged 18 years old and above, 14 or 3.9% got the score of 1 and below and 5 or 1.4% have scored 2-3 with mean of 0.95 which has the same verbal interpretation with the two age groups.

*Level of Applying Skills of Students in Terms of Age*

In terms of applying, 99 or 21.8% have scored 1 and below; 39 or 10.7% have scored 2-3 while only 1 or 0.3% have scored 4 and above from the 16-year-old respondents. They all got a mean of 1.15 which interpreted as low level thinking skills. From the 225 respondents aged 17, 156 or 43% have scored 1 and below; 67 or 18.5% have scored 2-3; and only 2 or 0.6% have 4 and above score in the assessment with a mean of 1.11 which is interpreted as low level thinking skills while respondents aged 18 and above, 16 or 4.4% have scored 1 and below; and 3 or 0.8% have scored of 2-3. It has a computed mean of 0.85 with the same interpretation with the previous age groups.

*Level of Analyzing Skills of Students in Terms of Age*

In terms of Analyzing, 81 or 22.3% have score of 1 and below and 38 or 10.5% have scored 2-3 from the 16-year-old respondents with the computed mean of 1.10 which is interpreted as low level thinking skills. Among the 17-year-old respondents, 138 or 38% have scored 1 and below, 86 or 23.7% have scored 2-3 while only 1 has score of 4 and above with the mean of 1.26 interpreted as low level thinking skills. As for respondents aged 18 and above, 13 or 3.6% have scored 1 and below while 6 or 1.7% have score of 2-3 with a computed mean of 1.33 which is also interpreted as low level thinking skills.

*Level of Evaluating Skills of Students in Terms of Age*

In terms of evaluating, from the respondents aged 16-year-old, 86 or 23.7% have scored 1 and below in the thinking skills assessment; 3 or 8.8% have scored 2-3; and only 1 or 0.3% have score of 4 and above. It has a computed mean of 1.08 and is interpreted as low level thinking skills. Among the 17-year-old respondents, 144 or 39.7% have scored 1 and below; 75 or 20.7% have scored 2-3, while 6 or 1.7% have scored 4 and above with a mean of 1.28 and is interpreted also as low-level thinking skills. While the 18-year-old and above respondents, 14 or 3.9% have score of 1 and below, and 5 or 1.4% have scored 2-3 with means of 1.10 interpreted as low level thinking skills which is the same as the other ages.

*Level of Creating Skills of Students in Terms of Age*

In terms of Creating. From the 119 respondents and 16-year-old, 44 or 12.1% have scored 2-3, 40 or 11% have scored 1 and below and 35 or 9.6% have scored 4 and above with computed mean of 2.31 which is interpreted as average level thinking skills. From the 17-year-old respondents, 86 or 23.7% have scored 2-3, 83 or 22.9% have scored 1 and below and 56 or have 15.4% scored 4 and above. It has a computed mean of 2.17 and is interpreted also as average level thinking skills. As for the 18-year-old and above respondents, 8 or 2.2% have scored 2-3 in the thinking skills assessment, 7 or 1.9% got the score of 1 and below and 4 or 1.1% scored 4 and above with its computed mean 2.15 which is interpreted the same with the two ages.

***In Terms of Sex***

*Level of Remembering Skills of Students in Terms of Sex*

As to their level of thinking skills in terms of Remembering, from the 281 females, 162 or 44.6% have scored 2-2 in the assessment; 82 or 22.6% have scored 1 and below; and 37 or 77.4% have scored 4 and above with computed mean of 2.18 which is interpreted as average level thinking

skills. On the other hand, 82 out of 363 respondents are male. From the 82 males 55 or have 15.2% scored 2-3; 15 or 4.1 % have scored 1 and below; and 12 or 3.3 5 have scored 4 and above with mean of 2.44 interpreted as average level thinking skills. In terms of remembering, both males and females have average level thinking skills.

#### *Level of Understanding Skills of Students in Terms of Sex*

In terms of Understanding, from the female respondents, 226 62.3% have scored 1 and below, and 55 or 15.2% have scored 2-3 with mean of 0.83 with a verbal interpretation of low level thinking skills. From the male, 65 or 17.9% have scored 1 and below, 16 or 4.4% have scored 2-3 while only 1 or 0.3% scored 4 and above with mean of 0.97 which is interpreted as low level thinking skills. Both males and females have the same level of thinking skills in terms of Understanding.

#### *Level of Applying Skills of Students in Terms of Sex*

In terms of Applying with the female respondents, 201 or 55.4% have scored 1 and below; 78 or 21.5% have score of 2-3 while 2 or 0.6% have scored 4 and above. It has a computed mean of 1.06 with the verbal interpretation of low level thinking skills. With the male respondents, 50 or 13.8% have scored 1 and below, 31 or 8.5% have scored 2-3 and only got the score of 4 and above with its mean 1.3 which has also the same interpretation as the female.

#### *Level of Analyzing Skills of Students in Terms of Sex*

In terms of Analyzing when grouped by sex, 175 or 48.2% have scored 1 and below; 105 or 28.9% have scored 2-2, and 1 or 0.3% have scored 4 and above in the assessment with computed mean of 1.2 which is interpreted as low level thinking skills. From the males, 57 or 15.7% have scored 1 and below and 25 or 6.9% have scored 2-3 with computed mean of 1.15 and is interpreted as low level thinking skills. In terms of Analyzing, both males and females have low level thinking skills.

#### *Level of Evaluating Skills of Students in Terms of Sex*

In terms of Creating, from the 281 female respondents, 108 or 29.8% have scored of 2-3, 103 or 28.4% have scored 1 and below, and 70 or 19.3% have scored 4 and above in the assessment. It has a computed mean of 2.16 and is interpreted as average level thinking skills. Out of 82 males, 30 or 8.3% have scored 2-2, 27 have scored 1 and below, and 25 or 6.9 % have scored 4 and above with the mean of 2.39 which is interpreted as average level thinking skills. In terms of creating, both males and females have the same level of thinking skills.

#### ***Overall Level of Thinking Skills of the Students***

##### *Overall Level of Remembering Skills of the Students*

The level of thinking skills of the respondents in terms of remembering revealed that out of the 363 respondents, 217 or 59.8% have scored 2-3 in the assessment; 97 or 26.7% of the respondents have 1 and below; and 49 or 13.5% have scored 4 and above from the 5-item questions. The computed mean of the scores of the respondents is 2.23 and is interpreted as average thinking skills. Thus, the table reveals that the ABM Senior High School Students have average thinking skills level in terms of remembering yet, remembering is said to be the lowest level of understanding.

Recent research defines remembering as a thinking activity. The greater the extent of thinking about something, the more likely it will be remembered. Flemming (1997) adds, “the more one dig into new material and really think about it, the better chance he has remembering it”. Laskey and Gibson (1997) quoted Kerby and Paster (1995) who affirm that thinking depends on how much and how well one can remember “because without memory there could not be a past, only present existence. Those skills include reading and recalling” However, Longman (1993) describes these skills as the lowest level of understanding and requires little more than auditory or visual memory skills appropriate for addresses phone numbers, name, and places. Laskey and Gibson (1997) suggest

some strategies to enhance this particular core thinking skills. Among them are using mnemonic devices, making appreciation, and making the material meaningful.

*Overall Level of Understanding Skills of the Students*

In terms of Understanding, it indicates that 291 or 80.2% of the respondents have scored 1 and below in the thinking skills assessment; 71 or 19.6% have scored 2-3, and only 1 or 0.3% have scored 4 and above. The computed mean from the scores of the students is 0.88 and is interpreted as low level thinking Skills. Thus, the ABM Students has Low Level Thinking Skills in Understanding.

*Overall Level of Applying Skills of the Students*

The level of thinking Skills of the respondent in terms of Analyzing, reveals that 232 or 63.9% have scored 1 and below; 130 or 35.8% have scored 2-3; and only 1 or 0.3% have scored 4 and above. The computed mean for Analyzing is 1.21 and is interpreted as the low level thinking skills. Thus, majority of the respondents have low level of analyzing skills.

*Overall Level of Evaluating Skills of the Students*

In terms of evaluating, 244 or 67.2% have scored 1 and below; 113 or 31.1% have scored 2-3; and only 6 or 1.7% have scored 4 and above. The computed mean is 1.21 which indicates that the majority of the respondents have low level of evaluating. It can be gleaned that there is similar scenario with the analyzing skills since the majority of the respondents fall under low category.

*Overall Level of Creating Skills of the Students*

In terms of Creating, it unveils that 138 or 38.0% of the respondents have scored 2-3 in the assessment; 130 or 35.8% have scored 1 and below, and 95 or 26.2% have scored 4 and above. The computed mean which was 2.21 which also indicates that most of the students have average thinking skills level when it comes to creating. This is essentially a good result for creation is one of the skills need in the present curriculum. Creative thinking skills enable students to generate end extend ideas, to suggest hypotheses, to apply imagination, and to look for alternative innovative outcomes (QCA, 2000 cited in Abuyon, 2007). Because creativity is at the heart of good literacy teaching at all levels. It is marker to display out to use language in increasingly effective ways in spoken and written expression. Creativity is equally important as an element of thinking in relation to the reasoning and enquiry skills.

Based from Anderson and Krathwohl's Revised Bloom's Taxonomy, it can be gleaned that only Remembering and Creating Skills with computed mean 2.23 and 2.21 respectively are interpreted as average thinking skills level which means ABM Senior High School Students of the Polytechnic university of the Philippines have average thinking skills level when it comes to Remembering and Creating while Low Level Thinking Skills in Understanding, Applying, Analyzing, and Evaluating. The study by Leongson reveals that Filipino students excel in knowledge acquisition but fare considerably low in lessons requiring higher order thinking skills. This disappointing condition is evident in the performance of students in national and international surveys on Mathematics and Science competencies. Performance of Mathematics teachers in the Professional Board Examination reveals the same picture of poor competencies (Philippine Daily Inquirer, 1986; Ibe, 1995)

***Test of Significant Relationship in the Students' Level of Thinking Skills Based on Their Profile***

Bases from the result, there is a significant relationship between Thinking Skills level of the respondents and their age in terms of Evaluating and Creating with p-value of 0.000 which is below the significance level of 0.05 while there is no significant relationship between the Thinking Skills level of the respondents in terms of Remembering, with the p-value of 0.92; Understanding with the p-value of 0.19; Applying with the p-value of 0.59; and Analyzing with the p-value of 0.61 which are all above the significance level. The same findings with the Thinking Skills Level versus Sex.

There is a significant relationship between the thinking skills level and sex in terms of evaluating and creating with p-value of 0.000 which are also below the significance level and there is no significant relationship with rest thinking skill and the sex which all have the p-value higher than the significance level.

Therefore, hypothesis is accepted since there is no significant difference in most of the Thinking Skills which are remembering, understanding, applying and analyzing and from Anderson and Krathwohl's taxonomy in relation to the respondents' demographic profile.

Miso (1999) in his study about the level of thinking skills in relationship to shipboard practice performance of the second year Nautical Students of Cagayan Capitol College, found a result that there was a significant relationship between the age and the level of thinking skills of the respondents. It means the younger respondents had higher of thinking skills. Based on Piaget's Theory (cited in Baloloy, 2003), the developmental stages are the 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 (Crowl et al., 1997). Tumkayaet. et al (2009 cited in Catigay et.al, 2015), have found that gender is not a significant variable related to critical thinking disposition or to perceived problem-solving skills. Grade level is significantly related to both problem solving and critical thinking dispositions. The result of their study indicates that the students' level of problem solving skills and critical thinking dispositions increase as they continue to college.

### Conclusions

Based on the findings of this study, the researchers had formed the following conclusions:

1. Most of the Accountancy and Business Management Senior High School Students are 17-year-old and the majority of them are females.
2. The level of thinking skills of students in terms of remembering and creating is Average. In terms of Understanding, Applying, Analyzing, and Evaluating, students have low thinking skills level. Overall, majority of the students' level of thinking skills is low.
3. Based on the findings, there is no significant relationship between the thinking skills of the students in terms of remembering, understanding, analyzing and applying and their age while, there is a significant relationship between the thinking skills level of the respondents in terms of evaluating and creating and their age. The same findings refer to respondents' level of thinking skills and sex.

### References

- Abuyon, L., (2007). *Study and thinking Skills of College Freshmen Students of Colegio San Agustin-Bacolod SY 2006-2007*.
- Acero, V., Javier, E., & Castro, H. (2000). *Principles and Strategies of Teaching*, 1st Edition. Manila: Phil: Rex Bookstore Inc.
- Anderson, L. &. (2001). *A Taxonomy for Learning, Teaching, and Assessing: A revision of Bloom's Taxonomy of Educational Objectives*. New York: Longman.
- Beyer, B. (1988). *Developing a Scope and Sequence for Thinking Skills instruction. Educational Leadership*.
- Bloom, B., Engelhart, M., Furst, E., Hill, W., & Krathwohl, D. (1956). *Taxonomy of Educational Objectives: Handbook I: Cognitive Domain*. New York: David McKay.

- Callison, D. (2002, September 12). Thinking (higher order) skills. *School Library Media Activities Monthly*, 18(8), 38-40.
- Cotton, K. (1991). *Northwest Regional Educational Laboratory's School Improvement Research Series Web*. Retrieved January 22, 2017, from <http://www.nwrel.org/scpd/sirs/6/cu11/html>
- Cotton, Kathleen. (1991). *Teaching Thinking Skills*
- Debbie Guice Longman, R. H. (1993). *College Learning and Study Skills*. New York: West Publishing Company.
- Feinberg, Daniel. (2002). *Critical Thinking Learning to Copy Information Correctly*
- Flemming, L. (1997). *Reading for Thinking*. USA: Houghton Mifflin Company.
- Gibson, M. L. (1997). *College Strategies: Thinking and Learning*. Needham Heights Massachusetts: Allyn and Bacon.
- Haladyna, T. (2004). *Developing and Validating Multiple-Choice Test Items. (3rd Ed.)*. Mahwah, N.J.: Lawrence Erlbaum.
- Hernandez, D. (1991). *Developing and Assessing Higher Order Thinking Skills. Monograph 46*. Quezon City: Institute for Science and Mathematics Education Development.
- Jandonero, N. (2004). *The appropriateness of teaching Strategies to enhance Higher order Thinking Skills(HOTS)*
- Johnson, S. A. (1992). Technology Education and the Cognitive Revolution, *Technology Teacher* 51(4).
- Manzo, A. A. (1995). *Teaching Children to be Literate: A Reflective Approach*.
- Ramirez, R., (2007). Creative Activities in Chemistry and students' Higher Order Thinking Skills.
- Sadler, W. (1987). *Hollistic Thinking Skills Instructions*. pp. 183-184.
- Santrock, J. W. (2004). *Educational Psychology 2nd Ed*. Boston: Mcgraw-Hilctions. pp. 183-184.
- Swartz, R. and McGuiness, C. (2014). *Developing and Assessing Thinking Skills*
- Woolfolk, A. (2001). *Educational Psychology. 8th Edition*. Boston: Allyn and Bacon.