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Examining Critical Thinking and Decision Making Skills as Graduate Attributes

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Abstract

The purpose of the study is to examine the critical thinking and decision-making skills of graduating students taking up a Business Administration major in Management Accounting, Marketing and Finance as well as their language proficiency levels as a determinant of critical thinking and decision-making skills. A total of 176 respondents from the three different degree programs participated in the study. Results revealed a Beginning Thinker with an over all CT score of 25.92. While Decision Making skills fall under the “often” category. Language Proficiency appeared to be significant for CT but not overly significant. Whereas DM correlates highly with LP. Further, there is a need to develop a more comprehensive understanding and application of Critical thinking in the business programs. Future related research may be conducted by adding more variables not found in the study.

Keywords: Critical thinking, decision making, language proficiency

Introduction

An ongoing phenomenon of mismatch has resulted in an increase in unemployment rate caused by university degrees which cannot satisfy employers' expectations of fit-to-do jobs. A study conducted in 2010 revealed that marketing skills expected for performing the marketing job were not found in graduates of a marketing program (Walker 2009). In accountancy, Jackling and De Lange (2009) found that accounting skills were inadequately taught in undergraduate accounting programs. Many of the studies conducted revealed that the skills and competencies acquired by the graduates are not pertinent to industry requirements and standards.

Pressing issues have motivated employers to focus on skills of graduates during the hiring and selection process rather than on their graduate degrees and the school at which the degree was taken (Zehner 2013). Employers demand that the skills required to do the jobs are already

acquired prior to hiring. Graduate attributes are then proposed that will match the skills of graduates serving the labour market.

Critical thinking and Decision Making skills are two of the most important graduate attributes which employers require from higher education institutions. Higher education institutions as service providers of learning enhance students' talents and skills that will suit the needs of real-business settings. Businesses demand higher order thinking skills and critical thinking and decision making skills that require a higher language proficiency in graduates in both oral and written forms. Business leaders must make decisions and the need to communicate clearly their ideas is of great importance. According to Ennis (2013), critical thinking is a reasonable and reflective action focused on deciding what to believe or do, which results in the development of intellectual traits (Lopez 2013). Traits include the ability to perform tasks, because critical thinkers are responsible for their own thinking (Shirkhani and Fahim 2011) and are capable of making decisions, while also having strong problem solving skills. Graduates' understanding the language of business is closely related with the thinking abilities so to motivate highly creative and innovative business ideas.

Critical thinking as a century skill and decision making as an important business skill were not solely developed as school requirements, but also for the fulfillment of the person as a responsible individual in society (Lopez 2018). Business decisions that business leaders make are based on how they think and understand the requisites of business. They have the ability to think and make correct decisions independently. As Ennis suggests, a critical thinker is disposed to think that their belief is true and decisions they make are justified. A finance graduate therefore is expected to understand the economic conditions of bearish, bullish and normal situations, especially when they are presented numerically or graphically. Expectedly, graduates must be able to analyze, interpret and decide on the effects of the condition of company operations. This is the same for marketing when the cost of goods sold affects profit and sales. The management functions of doing business requires a great deal of understanding, analyzing and solving problems systematically through planning, controlling, directing, and implementing all aspects of business operations: Human Resource, Production, Quality Control, Finance and Marketing. Business is highly dynamic where critical thinkers together with their computing skills, English language proficiency, and decision making ability will broaden the career readiness of these graduates and will further satisfy employers' expectations.

It is for this purpose that the researches wish to investigate the levels of critical thinking and decision making skills as well as language proficiency as determinants of CTS and DMS of graduating business students. The results will address the gap that may develop and or enhance graduates' attributes as attuned to industry requirement.

Participants

Respondents of the study were a total of 176 graduating business students, all enrolled in a Business Administration major in Management Accounting, in Marketing and Finance. The distribution of samples was based on the degree program, on age and on sex.

Table 1 Respondents of the Study

Degree Program	S-Female		S-Male		Number of Respondents	
	Count	Percentage	Count	Percentage	Count	Percentage
BA Management Accounting	23	41.8%	32	58.1%	55	31.2%
BA Marketing	26	43%	34	56.6%	60	34.1%
BA Finance	30	49%	31	50.8%	61	34.7%
Total Number	79	44.9%	97	55.1%	176	100%

Table 1 presents the number of respondents per degree program. The BA in Management Accounting had 31% of the total of respondents, the BA in Marketing was represented as 34.1% and 34.7% for a BA in Finance. With regards to sex, 44.9% were female and 55.1% were male.

Instruments

The researchers used the NCSUDMS Instrument (2003) or the North Carolina State University Decision Making Skills, which consist of 2 parts. The first part is the Component of Decision Making, and the second part is the Reliability and Confirmatory Principal Components Analysis of Decision Making (Barkman 2003). A 5 point Likert Scale was used to evaluate the five factors. The items within each factor that contributed to the skills and the category response for each were 1=Never, 2=Rarely, 3-Sometimes, 4=Often, 5=Always. In determining the relation of decision making skills to critical thinking skills, the CEU-Lopez CTT (Lopez 2012) was utilized. The latter is a multi-aspect general knowledge critical thinking test designed for tertiary students in the Philippines and in the Asian Context. This instrument has 87 items with 5 dimensions of critical thinking skills. The Critical Thinking test is a multiple choice test which includes five dimensions: Deduction has 19 items, Credibility has 17 items, Assumptions has 16 items, Induction, and Meaning/Fallacies has 19 items. The Language proficiency levels were taken from student grades in English subjects such as Purposive Communication, Business Communication and Technical Writing.

Results and Discussion

Table 2: The level of Critical thinking skills of the respondents per dimension and as a whole

Degree Program	Number of Respondents	DEDUCTION 1-19 Ave SCORE	CREDIBILITY 20-36 Ave SCORE	ASSUMPTION/ IDENTIFICATION 37-52 Ave SCORE	INDUCTION 53-68 Ave SCORE	MEANING/ FALLACIES Ave SCORE	CT TOTAL SCORE
BA Management Accounting Interpretation	55	6.33	5.78	5.64	3.58	5.24	26.56
		Beginning Thinker	Beginning Thinker	Beginning Thinker	Beginning Thinker	Beginning Thinker	Beginning Thinker
BA Marketing Interpretation	60	5.54	5.47	5.69	2.88	5.06	24.66
		Beginning Thinker	Beginning Thinker	Beginning Thinker	Beginning Thinker	Beginning Thinker	Beginning Thinker

BA Finance Interpretation	61	6.06	5.69	5.00	3.74	6.06	26.56
		Beginning Thinker	Beginning Thinker	Beginning Thinker	Beginning Thinker	Beginning Thinker	Beginning Thinker
OVERALL CT SCORE	176	5.97	5.65	5.44	3.40	5.45	25.92
Interpretation		Beginning Thinker	Beginning Thinker	Beginning Thinker	Beginning Thinker	Beginning Thinker	Beginning Thinker

Table 2 shows The Level of Critical Thinking Skills with the over-all performance of the respondents using the official norm of the CEU-Lopez Critical Thinking Test Manual. A score of CTS= 25.92 means that the respondents are “Beginning Thinkers” (B.T.). The table shows the corresponding results per dimension for each Degree Program, where their Average Scores in the CEU-Lopez Critical Thinking Test are as follows; BA in Management Accounting with 26.56; BA in Marketing with 24.66; and BA in Finance 26.56, where all are interpreted as “Beginning Thinkers” (B.T.). A beginning thinker, according to the CEU-Lopez Critical Thinking manual, was described by the characteristics below;

The Characteristics of Beginning Thinker(BT)

A beginning thinker starts to evaluate the logic of arguments and propositions he encounter. He begins to identify unjustifiable conclusions and assumptions, misused words and incredible statements in an argument or proposition although this individual is not able to identify the flaws in all arguments and propositions he may encounter. He begins to recognize not only that there are principles, criteria or standards for the evaluation of arguments and propositions but also the need to apply them and begin using them deliberately in thinking. Since this is a beginning stage, he does it with difficulty and uncomfotability for this is the stage that an individual just begins learning how to deliberately and consciously apply critical thinking criteria and principles in evaluating arguments and other propositions encountered. Hence, prolonged engagement in argument evaluation is needed to do the argument evaluation with ease and comfortability. This is the stage that an individual has a beginning understanding of the necessary role of these critical thinking principles and criteria in evaluation of arguments and other propositions

(Source: CEU-Lopez Critical Thinking Test Manual, 2012)

Table 3: Interpretation of Norms for Non-Science Students as a whole (CT)

Range of Scores	Z-Scores	Range of Percentile Rank	Verbal Description
42 above	2.093 and above	98.17 and above	Master Thinker
35-41	1.012 - 1.939	84.38 - 97.38	Advanced Thinker
29-34	0.085 - 0.857	53.59 - 80.51	Practicing Thinker

22-28	(-)0.996 - (-)0.070	15.87 - 47.21	Beginning Thinker
16-21	(-)1.923 - (-)1.151	2.74 - 10.51	Challenged Thinker
Below 15	(-)2.696 - (-)2.078	1.88	Unreflective Thinker

(Source: CEU-Lopez Critical Thinking Test Manual, 2012)

Table 3 presents the Interpretation of Norms for Non-Science Students with its range of scores and Verbal Description. In the CEU Lopez Critical Test Manual, 6 classification of thinkers were described from the lowest being Unreflective thinker with 15 below to the highest being Master thinker with 42 above. The results of the overall CT test of 25.92 fall under 22-28 of respondents of the 3 degree programs, who are all Beginning Thinkers.

Table 4: The Level of Decision Making Skills per Degree Program

Matrix of DM	MANAGEMENT ACCOUNTING	MARKETING	FINACE	MEAN	Interpretation
I. Components of DM	4.01	4.01	3.59	3.85	OFTEN
A.	4.01	4.01	3.50	3.82	OFTEN
B.	3.98	3.87	3.42	3.76	OFTEN
C.	3.89	3.94	3.50	3.78	OFTEN
D.	3.90	3.98	3.51	3.80	OFTEN
					OFTEN
II. Reliability and Principal Components					
A	4.11	4.00	3.69	3.93	OFTEN
B.	3.98	3.79	3.56	3.78	OFTEN
C.	3.93	3.83	3.63	3.80	OFTEN
D	3.95	3.84	3.56	3.78	OFTEN
MEAN	3.97	3.90	3.55	3.81	OFTEN

Source: ncsu.edu//fci/publications/v8-n1-2003/ar-1-accessing.php

Table 4 shows the respondent scores for the DM Instrument, with mean scores of 3.97 for BA in Management Accounting, 3.90 for BA in Marketing and 3.55 for BA in Finance. Overall combined scores received by the three respondents were 3.81, which fall under often. The often category reflected the respondents systematic, analytical thinking of the situation. These participants were willing to make choices and to comprehend that decision making is a cognitive process. The result of DM suggests that the respondents are capable of making decisions because of their capability to develop criteria for possible solutions.

Table 5: Correlation Coefficient between Critical Thinking Skills and Decision-Making Skills

Bulacan HEI	Critical Thinking Skills and Interpretation	Correlation and Interpretation	Decision Making Skills and Interpretation
BA Management Accounting	<u>Over-All CT Skills</u> 26.5636 Beginning Thinker	<u>0.10</u> Slight Correlation	Over-All DM Skills 3.97 OFTEN
BA Major in Marketing	<u>Over-All CT Skills</u> 24.6610 Beginning Thinker	<u>-0.18</u> Slight Negative Correlation	Over-All DM Skills 3.90 OFTEN
BA Major in Finance	<u>Over-All CT Skills</u> 26.5645 Beginning Thinker	<u>0.05</u> Slight Correlation	Over-All DM Skills 3.55 OFTEN
(Over-All	<u>Over-All CT Skills</u> 25.9297 Beginning Thinker	<u>-0.05</u> Slight Negative Correlation <u>0.07</u> Slight Correlation <u>0.04</u> Slight Correlation	Category 1: 3.80 Often Category 2: 3.82 Often Over-All: 3.81 Often
(Per Dimensions of CTS and Factors of DMS)	Deduction 5.9780 Beginning Thinker	<u>0.03</u> Slight Correlation <u>0.04</u> Slight Correlation	Category 1: 3.80 Category 2: 3.82
	Credibility 5.6499 Beginning Thinker	<u>-0.06</u> Slight Negative Correlation <u>0.04</u> Slight Correlation	Category 1: 3.80 Category 2: 3.82
	Assumptions/Identification 5.4437 Beginning Thinker	<u>-0.05</u> Slight Negative Correlation <u>0.01</u> Slight Correlation	Category 1: 3.80 Category 2: 3.82
	Induction 3.4017 Beginning Thinker	<u>0.01</u> Slight Correlation <u>0.06</u> Slight Correlation	Category 1: 3.80 Category 2: 3.82
	Assumptions 5.4562 Beginning Thinker	<u>-0.07</u> Slight Negative Correlation <u>0.07</u> Slight Correlation	Category 1: 3.80 Category 2: 3.82

Table 5 presents the Significant Relationship of Critical Thinking Skills and Decision Making Skills. The Correlation Coefficient between Critical Thinking Skills and Decision Making Skills =-0.05 (S.L.) Over-All CTS and DMS Factor 1; =0.07 (S.L.) Over-All CTS and DMS Factor 2; and Over-All CTS and Over-All DMS is =0.04 which belongs under the value of r and its verbal interpretation, which is “Slightly Correlated” (S.L.). Therefore, there is a significant relationship between the two variables using the Pearson r Product Correlation. It is also evident that the two variables have correlation with each other whether it is per dimension and per factor in each instrument used which suggests that decision making factors are dependent on their Critical Thinking Skills.

Table 6: Language Proficiency Levels of Business Students

Respondents per Degree Program	Purposive Communication	Business Communication	Technical Writing	OVERALL AVE SCORE
BA Management Accounting	2.0	2.5	2.0	2.17
BA Marketing	2.5	2.75	2.0	2.41
BA Finance	2.5	2.75	2.5	2.59
Overall LP Score	2.33	2.67	2.17	

The proficiency level of respondents per degree program were taken from the respondents school grades with 1.0 as the highest and 5.0 as the lowest or failing grade, and a passing grade of 3.0. Grades were taken from the 3 semesters where students were enrolled in their respective degree programs and were taking up English Subjects. The overall results were that Purposive Communication had 2.33, Business Communication had 2.67 and Technical Writing had 2.17. Technical writing received the highest score among the three business subjects, while BA in Management received the highest score of 2.17, followed by BA in Marketing with 2.41 and BA in Finance with the lowest grade of 2.59.

Table 7: Relationship of Language Proficiency Levels with the Respondents Critical Thinking and Decision Making Skills in each Degree Program

BA Management Accounting	
Critical Thinking and Language Proficiency	Decision Making Skill and Language Proficiency
0.055223701	0.97569
Slight Correlation	Very High Correlation
BA Major in Marketing	
Critical Thinking and Language Proficiency	Decision Making Skill and Language Proficiency
0.050239439	0.75176
Slight Correlation	High Correlation
BA Major in Finance	
Critical Thinking and Language Proficiency	Decision Making Skill and Language Proficiency
-0.0277274	0.88660
Slight Correlation	Very High Correlation

Table 6 presents the relationship of Language Proficiency and The Critical Thinking Level of Respondents for each degree program. There is a slight relation between the Language Proficiency Level and the respondents Critical Thinking Skills, whereas Language proved to be highly correlated with the respondents' Decision Making Skills.

Conclusions and Recommendations

On the basis of the findings of the study, the following conclusions were drawn:

1. The level of critical thinking skills of the respondents belong to Beginning Thinker (B.T), which suggests that the respondents are just starting to evaluate the logic of arguments and propositions they encounter. Since this is a beginning stage, respondents will experience difficulty and discomfort as this is as the stage where they are just starting to learn how to deliberately and consciously apply critical thinking criteria and principles in evaluating arguments and other propositions.
2. The level of decision making skills is a multi-facet to consider. It is rooted in one's ability to define problems, identify and select alternatives, and to weigh and evaluate decisions, which are fundamentals in decision making. The result of the Decision Making test is comparatively high than that of the Critical thinking test where respondents are Beginning Thinkers. Designing a curriculum focused on the acquisition of both critical thinking and decision making skills will improve the critical thinking abilities of respondents on situations requiring intelligent decisions.
3. There exists an evident relationship between critical thinking and decision making skills as the former serves as predictor. Language proficiency levels and the critical thinking skills proved to be significant but not to the highest level, while Language proficiency and respondents' Decision Making Skills are highly correlated which suggests that the higher the Language Proficiency, the higher the Decision Making Skills.

Recommendations

There is a need to develop a more comprehensive understanding and application of Critical thinking as a graduate attribute among business degree programs. Future related research may be conducted by adding more variables not found in the study.

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