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Effects of Students' Critical Thinking Skills on Their Writing Capability

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Abstract: **The objective of this study is to determine the effects of students' critical thinking skills on their writing capability leading to research in terms of content in Filipino. The respondents of this study were the 320 students of Xavier University-Ateneo de Cagayan. This study used a researcher-made questionnaire. The students were asked to sign the first part stating their voluntary participation in the study and were assured of the confidentiality of their personal data. The findings support the theory that students' critical thinking skills brought an enabling effect on students' writing capability in Filipino. The critical thinking skills such as applying standards, discriminating, and transforming knowledge explain significantly students' capability in developing unity in writing leading to research. The same skills including analyzing also explain significantly students' capability in developing emphasis in writing leading to research, while students' capability in developing coherence in writing leading to research is explained significantly by their skills in discriminating and transforming knowledge. It can be deduced, that students' score in writing content leading to research is influenced by their critical thinking skills. Thus, more assessments indulging activities that can develop critical thinking skills like analyzing, applying standards, discriminating and transforming knowledge should be instituted to enhance students' writing capability considering content leading to research.**

Keywords: **unity, coherence, emphasis, and writing capability.**

I. INTRODUCTION

It is known to all educators that writing skill is a process. Since it is a process, teaching writing in the academe is employed gradually so that intensive learning may occur. The transformation of knowledge does not only take place in one sleepless night. It needs so much time, effort and energy for educators to substantiate the needs for quality writing output. Writing skill as describe by faculty members who teach writing saw writing as a window to the brain and helps students retain and transfer knowledge. Therefore, effective writers have an imagination, a dedication to communicating, an understanding of style, a framework of writing, an inquisitive mind, a motivation to write and a want to know more.

To produce graduates who are better communicators, not only in oral form but as well as in written form is one of the many goals needs to be achieved by educational institutions all over the world. Most educators believe that those graduates who can write quality output are those who can get dissent jobs with higher pay and with brighter future. These are some of the reasons why instructors and professors in tertiary level make some steps and strategies to enhance and develop students' writing skills. Some of the steps which Instructors employ are by having serious and intensive training through composition writing – formal and informal, writing essays during exams and the like.

On the other hand, it is also necessary to develop students' critical thinking skill so that better writing output will be visible. It cannot be denied that the most common problem in today's Philippine educational system is students' inability to perform learning tasks and projects due to teacher's inability to train students in answering questions that deal with critical thinking skills. This inability to train students can be charged to lengthy course content, inadequate time for writing activities and feed backing. This is the reason why, the Department of Education create some interventions to address this phenomena in the educational system.

All educators agree that critical thinking skills are essential attribute of an educated person (Salman, 2003). Critical thinking has led people to create ideas and inventions that make life today dramatically better than it was in the past (Rainbolt & Dyer, 2012).

In line with this, different institutions, schools, colleges, and universities obliged their teachers to undergo intensive training in order to gain some strategies and techniques that can be used to develop their students' writing capability as one of the content for the 21st century skills. To address students' inadequacies in writing, writing activities are embedded in the curriculum of all disciplines. Experts strongly believe that writing skill are expected to give impact in the needs of society particularly in solving problems and in developing research, academic paper, article, journal and creative works. Research has shown the importance of critical thinking in changing students' misconceptions in learning environment (Kowalski & Taylor, 2004). Law & Kaufhold (2009) found that students who engage in regular activities that promote the development of critical thinking skills perform higher on tasks of higher order thinking in application to their writing capability.

As observed and revealed in the assessments conducted in classes, students in Filipino are weak in tasks and learning activities that involves critical thinking skills and writing capability. Faculty also demonstrated their lack of interest in using writing activity as a tool to develop students' skill, in both critical thinking and writing. This is related to Cobia (1986) that faculty seemed to lack the desire to learn to teach writing which is in contrary to Rocca (2010) who discovered that faculty showed a moderate to high level of interest in improving their ability to teach writing even though they recognized their lack of skills.

Research has led many educators to suggest that thinking skills are the basis on which all other skills are developed. A command of critical thinking skills required for analyzing, applying standards, discriminating, information seeking, logical reasoning, predicting and transforming knowledge, using motor skills, and developing values and attitudes, successfully develop the skills needed for students to become responsible and productive citizens. Critical thinking skills can affect writing capability as a macro skill in communication. It should be cultivated and should be developed among students. The two skills are very significant for the up-coming research endeavors of the students in Filipino 33 (Pagbasa at Pagsulat Tungo sa Pananaliksik) which is the terminal competency or major learning outcome.. Those students that are not fully challenged and have not developed their critical thinking skills and writing capability will have a hard time in completing their research output that is the final requirement for Filipino 33.

The scope of this article focused on the effects of students' critical thinking skills on their writing capability in Filipino. This is directed to investigate the answer on what is the effect of students' critical thinking skills on their writing capability in Filipino?

The conceptual framework is anchored to Bruner's Constructivist theory which states that learners construct new ideas or concepts based upon existing knowledge. Learning is an active process. Facets of the process include selection and transformation of information, decision making, generating hypotheses, and making meaning from information and experiences. The construction of meaning is plausible in their own experiences inside the classroom. It is also relative to the subskills of critical thinking skills by Rubenfeld & Scheffer (2010), analyzing, applying standards, discriminating, information-seeking, predicting, logical reasoning, and transforming knowledge of which students need to experience and to be exposed with inside the classroom. Their experiences in critical thinking skills would bring them to construct significant meaning relative to the subskills of writing capability in terms of content (Bernales, 2011). Students' difficult experiences while writing are results on students' poor experiences on questions dealing higher order thinking skills. In writing, there are so many elements to be considered such as the organization of content in terms of unity, coherence and emphasis which also demand critical thinking skill experiences not only focusing in writing as a process but as a skill.

To write a paragraph with unity, it is necessary that each paragraph's topic sentence supports an essay's thesis statement and each support sentence within a paragraph. Ideas other than those that help develop, support or clarify the topic and subtopics in the writing may not be introduced *(freelance-writing-article.knoji.com/paragraphs-unity-coherence-emphasis/May 19, 2016).*

On the other hand, to write a paragraph with coherence means that the ideas expressed in writing are presented so that the content is clear and convincing. Coherence keeps readers moving from idea to idea to idea, keeps their focused on relevant information and presents ideas with clarity and precision. The thoughts should not be presented chaotically in a random and confusing manner. Generally, ideas can be order by time, space and importance *(freelance-writing-article.knoji.com/paragraphs-unity-coherence-emphasis/May 19, 2016).*

However, emphasis is the principle of the paragraph composition in which the important ideas are made to stand here. It is very important that main points of the writer should be evident inside the paragraph. Having an emphasis can be achieved by using some devices such as the use of emphasis by proportion, by pause and by position *(freelance-writing-article.knoji.com/paragraphs-unity-coherence-emphasis/May 19, 2016).*

Gallares (2012) stated that the degree of students to effectively use their potential is determined by cognitive functioning. The solid foundation of critical thinking skills is the key towards writing proficiently with organized ideas in terms of content.

Thomson (2008) as cited by Gallares (2012) says that written language has to be much more careful than spoken; the writer has no chance of correcting himself on the spot if not understood. This is a contradicting idea of Barnet (1989) which states that both students and teachers are commonly frustrated over a number of errors and the lack of improvement in student writing. She suggests that teachers look at writing as a process, or a series of drafts, including prewriting, writing, and rewriting. Less correction of grammatical errors, together with real attention to content, leads ultimately to better student compositions (Barnet, 1989).

De Castro (2004), as cited by Ocangas (2010) states that: teaching how to write is focused on the process and not on the output or product. This is contrary to the past decade where the teachers gave more emphasis on the product of writing such as essays, reports, short stories and unto whatever is might be the form of it. It is already a fact that reading and writing are surrounded with same pedagogical problem.

In like manner, the National Commission on writing (2003) proclaimed that writing education needed transformation and since that time, writing within the discipline has invaded college campuses. According to HUD, et al. (2013), writing instructors have two roles: coaches who guide the creative and discovery process and teachers who help students understand writing conventions and standards within the discipline. Bean (2011) argued that students fail as writers because of writing instructors lack of effort to teach writing. Teaching writing is time consuming (Bok, 2006). If instructor focus more on helping their students during the development stages of the writing process, it would eliminate hours spent providing summative feedback at the end of the project (Schiff, 2010).

The **objective** of this article is to determine the effects of students' critical thinking skills on their writing capability in terms of content (unity, coherence and emphasis) in Filipino through a researcher-made questionnaire. Results of this study will be utilized as tool to revisit the departments programs and plans that relates to curriculum, faculty, strategies and instructional materials

The study is beneficial directly to the students and Teachers in Filipino. For teachers, this give them information on the extent impact of their teaching performance based on the students' result in their critical thinking skills. The data will be useful in their teaching innovations such as employing reading activities and the like as reflected in the course syllabus. For students, as immediate receivers of the teaching-learning process, results are utilized in the conduct of teaching of all teachers in Filipino. They can be grateful and mindful to whatever action plans that the department imposes based on the concrete action to be implemented right after the completion of this academic paper.

II. RESEARCH DESIGN AND METHODS

After identifying the main concern of this article, the proponent wrote letter of permission to conduct a study from her immediate superior, from the teachers holding Filipino 33 and from the students who were the direct respondents. It was followed by determination sampling procedure to approximately come up with sample size. Proportionate simple random sampling is the sampling procedure being used.

In order to address the objectives of the study, the proponent preferred to compute distribution of mean to identify students' level of critical thinking skills in Filipino and writing capability in Filipino and multiple linear regression to determine the effect of students' critical thinking skills (analyzing, applying standards, discriminating, information seeking, logical reasoning, predicting and information seeking) on their writing capability considering content (unity, coherence and emphasis).

This article used the descriptive method of research which according to Best and Khan (2006), descriptive research was considered to be the most suitable design in studying the styles, habits and skills that occur and exist. It is more concerned with the relationships and practices that prevail, beliefs or points of view that take place, processes that are going on, effects that are being felt or trends that are developing. Every process goes beyond the mere data gathering, coding,

computing and tabulating data. It involves formulation, presentation, analysis, and interpretation on the meaning or significance of what is described. A researcher-made instrument was composed of two parts: First part contained the 35 questions taken from the three selections (*Di Mo Masilip Ang Langit ni Benjamin Pascual, Sipi: PDAF Labag sa Saligang Batas On line Pinoy balita sa November 20, 2013 ni: Beth Camia at Sipi: PAGBANGON MULA SA BANGUNGOT Posted by Online Balita on Nov 20th, 2013.-anonymous-).* This was chosen by the proponent with a corresponding TOS at five items per critical thinking subskill in order to measure students' of critical thinking skills with 1 point allocation for every correct answer. A composition form of 200 words capacity was created by the proponent for students' individual writing output (The Advantages and Disadvantages of Students' Digital Literacy). A rubric was designed for each subskill to facilitate checking objectively. And in order to measure students' writing capability in Filipino safe from any issues of bias: content is allotted 35 points where unity=15, coherence=10 and emphasis=10. A rating scale was prepared where 5 is the highest and 0 is the lowest for each subcomponents of the components of writing capability considering content-unity, coherence and emphasis (4.00-5.00=excellent, 3.00-3.99=very good, 2.00-2.99=good, 1.50-1.99=fair, 1.00-1.49=poor and 0.00-0.99=very poor). For easier way of extracting the overall mean for each subskill, similar rating scale for each subcomponents were employed. Finding Mean was used to identify students' level of critical thinking skills and writing capability in Filipino. Multicollinearity model was signified in computer output to determine the correlation among the subskills of critical thinking skills. Three models of Multiple Linear Regression were signified in computer output to determine the effect of students' critical thinking skills on their writing capability considering content in Filipino. One model of Multiple Linear Regression was reflected in the results to come up with the overall effects of students' critical thinking skills on students' writing capability in Filipino considering overall content. One model for summary of the effects of critical thinking skills on their writing capability considering overall content.

This scientific study was conducted specifically to nine full-time teachers in the Filipino department who handled Filipino 33 classes and to students who took Filipino 33 during the second semester of school year 2013-2014. Each college had different number of respondents: SOE=64, Liberal Arts=38, SBM=76, Engineering=89, Nursing=38, and Computer Studies=15. The total respondents were selected through proportionate simple random sampling where the respondents were asked to sign the first part stating their voluntary participation in the study and were assured of the confidentiality of their personal data. The values given were: N = 1,000; alpha = 0.05; Z = 1.96; HV = 35; LV = 0; and E = 0.99. The sample size of 320 was obtained but discarded one respondent because the questionnaires were not properly answered. The data collection took place last December 16 to 20, 2013 in different time slots.

Test questionnaires were used as research instrument to gather firsthand information and primary data which addressed students' critical thinking skills and writing capability in Filipino. This tool had underwent pilot testing to students who were not respondents of this study, intensive proofreading, revising and editing by the expert faculty of the Filipino Department and by the proponent herself were implemented to ensure validity of the instrument. The researcher consulted the Filipino department faculty members for comments and suggestions and was submitted to the chairperson for approval. It was also tested through a test of reliability using the Cronbach Coefficient Alpha formula and it showed reliable with the numerical value of 0.65.

To strengthen claims and insights, the proponent used some published materials in the library such as literatures from books, unpublished studies such as thesis and dissertation and the use of online database that corresponds to the necessary concepts relative to the topic for this article as well. Firsthand data gathered from SY 2013-2014 were utilized so that claims and findings will be supported based on the results of hypothesis testing.

For deeper understanding, the following terms are defined conceptually and operationally:

Content: This refers to the entire context that is being developed by students through the correct choice of words and sentence structures, to the concept being developed through ideas with unity, coherence and emphasis that will result to substantive paragraphs in a composition.

Coherence: This refers to the characteristics of a composition output that contains correct agreement of subject and verb in the level of sentences. While in the level of paragraphs, this can be identified through accurate use of transitional devices such as the use of conjunctions that have an important role in maintaining the logical flow of the entire composition.

Emphasis: This refers to the stress given to a certain part of the composition to capture the attention of the readers as to which part gives important information which are very helpful for the reader's better and effective understanding.

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Unity: This refers to the characteristics of each paragraph of a composition output that contains supporting details that help each other to develop one clear main idea. The main idea may either be implied or expressed.

Critical thinking skills: This refers to students' abilities and capabilities to evaluate objectives and content of the excerpts of the selection preferred to be the springboard based on the seven components namely: analyzing, applying standards, discriminating, information seeking, logical reasoning, predicting and transforming knowledge.

Analyzing: This term refers to separating or breaking a whole into different aspects such as sorting out or studying the following as depicted within the selection: main idea or the theme, objective, tone, prevailing emotion and point of view.

Applying standards: This refers to judging according to established rules or criteria. This could be done if the students will be able to identify or judge the concepts or ideas according to its *validity* or whether the idea would be considered as *facts or opinion*.

Discriminating: In the study this refers to recognizing differences and similarities among things or situations such as main idea against supporting details and distinguishing carefully as to category or rank according to social status that can be detected through chronological orders, sequencing and procedural.

Information Seeking: This refers to the act of identifying the validity of ideas or concepts by searching for evidence, facts or knowledge, identifying relevant sources and gathering objective, subjective, historical, and current data that can be depicted on the visual presentation such as map, chart, graph and table.

Logical reasoning: In the study this refers to drawing inferences or conclusions as to deduce from the information or the rationale for the conclusion. This can be done through hypothesizing.

Predicting: This refers to the envisioning of a plan and the consequences as reflected in the selection as to determine solutions or possibilities from an existing problem or identifying the cause of the effect or consequence.

Transforming knowledge. This refers to the changing or converting of the condition, nature, form, or function of concepts among contexts of the selections used in the study by formulating generalization or summary. An example is the reading of the context of injustices that would result to doing just and right actions in order for justice to prevail.

Filipino 33 Classes: This refers to the sections in Filipino 33 of Xavier University, School Year 2013-2014 who were the respondents of the study.

Writing Capability: This phrase refers to the performance level of the student-respondents in Filipino 33 in terms developing a topic or issue based on content with unity, coherence and emphasis.

III. RESULTS

The results of multicollinearity indicate that the variable of critical thinking skills are not correlated. It can be seen in Table 1. The table revealed that there has no multicollinearity among the subskills of critical thinking. Considering the data of Table 1, there are no value 0.60 and above. This is the reason why null and alternate hypothesis should be formulated prior to Multiple Linear Regression Model.

Table 1 Test of Multicollinearity Among the Subskills of Critical Thinking

	Analyzing	Applying Standards	Discriminating	Information Seeking	Log ical Reasoning	Predicting	Transforming Knowledge	
Analyzing	*1*							
Applying Standards	0.044033	1						
Discriminating	0.122085	0.110228	1					
Information Seeking	0.125384	0.129684	0.21267	1				
Logical Reasoning	0.052718	0.150446	0.093669	0.025538919	1			
Predicting	0.087119	0.172988	0.079994	0.177198488	0.204489629	1		
Transforming Knowledge	0.108185	0.146919	0.104478	0.304760585	0.126861965	0.19714	1	

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This section also presents the findings of the study as presented in tables according overall mean of critical thinking skills and writing capability in terms of content (unity, coherence and emphasis) and to the significant effect of students' critical thinking skills on their writing capability in terms of content (unity, coherence and emphasis) in Filipino?

Thus, findings are presented from tables 2-6. Among the seven subskills of critical thinking, table 1 shows that two subskills where students obtained good rating are information-seeking 3.50 and transforming knowledge 3.63. Meanwhile, four components where students have fair rating are applying standards 2.53, predicting 2.44, discriminating 2.30 and analyzing 2.04. Poor rating generated by the students is on logical reasoning with a mean score of 1.84.

Table 2 Distribution of the Students' Level of Critical Thinking Skills (n=319).

Indicators	Mean	Description
Analyzing	2.04	Fair
Applying standards	2.53	Fair
Discriminating	2.30	Fair
Information seeking	3.50	Good
Logical Reasoning	1.84	Poor
Predicting	2.44	Fair
Transforming Knowledge	3.63	Good

Table 3 shows that the students obtained good rating in the three subskills (unity 3.77, coherence 3.95, and emphasis 3.86) of writing capability.

Table 3 Distribution of the Student-Respondents' Writing Capability Considering Content (n=319).

Indicators	Mean	Description
1. Unity	3.77	Good
2. Coherence	3.95	Good
3. Emphasis	3.87	Good
4. Overall	3.86	Good

Among the seven subskills of critical thinking, three subskills contribute highly significant effect on students' writing capability in terms of content-unity based on the P-Value (applying standards 0.001, discriminating 1.08E-05 and transforming knowledge 6.7E-06. Meanwhile, four components of critical thinking do not contribute significant effect on students' writing capability in terms of content-unity based on the P-value (analyzing 1.11, information seeking 0.08, logical reasoning 0.66, and predicting 0.09) as revealed in Table 4.

It can also be seen from table 3.1, that regression model is highly significant (F = 21.88**). The null hypothesis is rejected. The computer output shows that applying standards, discriminating and transforming knowledge bring significant change on students' writing capability in terms of content-unity.

The value of adjusted coefficient of multiple determination (R2) is 0.17 which shows that only 17% of the total variation on students' writing capability in terms of content-unity is explained by the variation of the levels of three subskills of the critical thinking (applying standards, discriminating, and transforming knowledge). The remaining 83% is due to unexplained subskills. Unexplained subskills can be other factors affecting the students' writing capability in terms of content-unity.

Table 4 Regression Model on the Effect of Students' Critical Thinking Skills on their Writing Capability Considering Content-Unity

Independent Variable	Regression Coefficient	T-Value	Probability (P value)	Result
Analyzing	0.46	1.61	1.11	Ns
Applying standards	0.86	3.31	0.001	**
Discriminating	1.10	4.47	1.08E-05	**
Information Seeking	0.46	1.77	0.08	Ns
Logical Reasoning	-0.13	-0.44	0.66	Ns
Predicting	0.42	1.71	0.09	Ns
Transforming Knowledge	1.23	4.78	6.7E-06	**

Equation: Y=1.94 + 0.86X2 + 1.10X3 + 1.23 X7

Constant: 1.94

R2 = 0.17

F –Value : 21.88

Significant Level : 6.72E-13

As revealed in Table 3.2, among the seven subskills of critical thinking, two subskills contribute highly significant effect on students' writing capability in terms of content-coherence based on the P-Value (discriminating 0.0001 and transforming knowledge 1.16E-06). Meanwhile, five components of critical thinking skills do not contribute significant effect on students' writing capability in terms of content-coherence based on the P-value (analyzing 0.91, applying standards 0.43, information seeking 0.18, logical reasoning 0.83, and predicting 0.10).

It can also be seen from table 3.2, that the regression model is highly significant (F = 19.65**). The null hypothesis are rejected. The computer output signifies that the two subskills of critical thinking (discriminating and transforming knowledge) bring changes on students' writing capability in terms of content-coherence.

The value of adjusted coefficient of multiple determination (R2) was 0.11 which shows that only 11% of the total variation of the respondents' writing capability in terms of content-coherence can be explained by the variation of the levels of critical thinking subskills (discriminating, and transforming knowledge). The remaining 89% is due to unexplained subskills or randomness. There can be other subskills and factors which affect students' writing capability in terms of content-coherence.

Other independent variables like analyzing, applying standards, information seeking, logical reasoning, and predicting do not give significant effects to the respondents' writing capability in terms of content-coherence.

Table 5 Distribution of Regression Model on the Effect of Students' Critical Thinking Skills on their Writing Capability Considering Content-Coherence

Independent Variable	Regression Coefficient	T-Value	Probability (Pvalue)	Result
Analyzing	0.03	0.12	0.91	ns
Applying standards	0.20	0.79	0.43	ns
Discriminating	0.76	3.29	0.0001	**
Information Seeking	0.33	1.34	0.18	ns
Logical Reasoning	-0.06	-0.21	0.83	ns
Predicting	0.38	1.63	0.10	ns
Transforming Knowledge	1.24	4.96	1.16E-06	**

Model: Y=2.71 + 0.76X3 + 1.24X7
Constant: 2.71
R2: 0.11
F-Value: 19.65
Significant Level: 9.07E-09

Among the seven subskills of critical thinking, only one component has significant effect on students' writing capability in terms of content-emphasis based on the P-Value (analyzing 0.04). Moreover, three components of critical thinking skills contribute a highly significant effect on students' writing capability in terms of content-emphasis based on the P-value (applying standards 0.0008, discriminating 0.0001 and transforming knowledge 1.89E-05). However, three subskills do not contribute significant effect on students' writing capability in terms of content-emphasis based on the P-value (information seeking 0.58, logical reasoning 0.67, and predicting 0.10) as revealed in table 6.

As indicated in the results, the regression model is highly significant (F=16.72**) based on the four subskills in critical thinking (analyzing, applying standards, discriminating and transforming knowledge). The null hypotheses are rejected. The computer output signifies that the four subskills of critical thinking contribute highly significant effect on the students' writing capability in terms of content-emphasis. The value of adjusted coefficient of multiple determination (R2) was 0.18 which shows that 18% of the total variation of the respondents' writing capability in terms of content-emphasis

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is explained by the variation of the of critical thinking subskills (analyzing, applying standards, discriminating, and transforming knowledge). The remaining 82% is due to unexplained subskills or randomness.

Other independent variables like information seeking, logical reasoning and predicting, do not give significant effects on students' writing capability in terms of content-emphasis.

Table 6 Distribution of Regression Model on the Effect of Students' Critical Thinking Skills on their Writing Capability considering Content-Emphasis

Independent Variable	Regression Coefficient	T-Value	Probability (P-Value)	Result
Analyzing	0.59	2.04	0.04	*
Applying standards	0.91	3.40	0.0001	**
Discriminating	0.98	3.86	0.58	**
Information Seeking	0.15	0.55	0.67	ns
Logical Reasoning	0.13	-0.42	0.10	ns
Predicting	0.43	1.67	1.89E-05	ns
Transforming Knowledge	1.20	4.34		**

Model: Y=1.85 + 0.59x1 + 0.91X2 + 0.98x3 + 1.20x7
Constant: 1.85
R2: 0.18
F-value: 16.72
Significant Level:1.94116-12

As revealed in table 7, among the seven subskills of critical thinking, only three subskills of critical thinking (applying standards, discriminating and transforming knowledge) give highly significant effect on students' writing capability in terms of content based on the P-Value (0.004, 2.2452E-05 and 7.01685E-05). Meanwhile, four subskills of critical thinking do not bring significant effect on students' writing capability in terms content based on the P-value (analyzing 18, information seeking 0.18, logical reasoning 0.69, and predicting 0.07).

As indicated in the results, the regression model shows a highly significant (F=22.003**). The null hypotheses are rejected. The computer output signifies that the subskills of critical thinking (applying standards, discriminating and transforming knowledge) contribute a highly significant effects on the students' writing capability in terms of content. The value of adjusted coefficient of multiple determination (R2) is 0.17 which shows that 17% of the total variation of the respondents' writing capability in terms of content is explained by the variation of the levels of the subskills of critical thinking (applying standards, discriminating, and transforming knowledge). The remaining 83% is caused by unexplained subskills or randomness.

Other independent subskills like analyzing, information seeking, logical reasoning and predicting, do not give significant effects on students' writing capability in terms of content.

Table 7 Regression Model on the Effect of Students' Critical Thinking Skills on their Writing Capability in terms of Content

Independent Variable	Regression Coefficient	T-Value	Probability (P-Value)	Result
Analyzing	0.35	1.35	0.18	ns
Applying standards	0.69	2.91	0.004	**
Discriminating	0.96	4.30	2.24526E-05	**
Information Seeking	0.31	0.33	0.18	ns
Logical Reasoning	0.11	0.40	0.69	ns
Predicting	0.41	1.83	0.07	ns
Transforming Knowledge	1.23	5.06	7.01685E-07	**

Model: Y=2.19 + 0.69x2 + -0.96x3 + 1.23x7
Constant: 2.34
R2: 0.17
F-value: 22.003
Significant Level: 5.8E-13

Among the seven subskills of critical thinking, only three subskills of critical thinking (applying standards, discriminating and transforming knowledge) bring highly significant effect on students' writing capability in terms of content-unity based on the P-Value (0.001, 1.08E-05 and 6.7E-06). On the other hand, two subskills of critical thinking (discriminating and transforming knowledge) give highly significant effect on students' writing capability in terms of content-coherence based on the P-Value (0.0001 and 1.16E-06) while only one subskill (analyzing) brings significant effect on students' writing capability in terms of content-emphasis based on the P-Value (0.04) while three subskills of critical thinking (applying, discriminating, and transforming knowledge) contribute highly significant effect on students' writing capability in terms of content-emphasis based on the P-value (0.0008, 0.0001 and 1.89E-05).

Among the seven subskills of critical thinking, summary of regression model reveals that three subskills (applying standards, discriminating, and transforming knowledge give highly significant effects on students' writing capability in terms of content based on the P-Value (0.004, 2.2452E-05 and 7.01685E-05).

It shows in the summary of regression model that only two subskills of critical thinking (discriminating and transforming knowledge) consistently contribute highly significant effects on students' writing capability in terms of content in Filipino based on the P-value (2.2452E-05 and 7.01685E-05).

Table 8 Summary of Regression Model on the Effect of Students' Critical Thinking Skills on their Writing Capability In terms of Content

Writing Capability (Dependent Variable)	Regression Model	Test Stat F
1. Unity	$\hat{y} = 1.94 + 0.86x2 + 1.10x3 + 1.23x7$	21.88**
2. Coherence	$\hat{y} = 2.71 + 0.76x3 + 1.24x7$	9.295**
3. Emphasis	$\hat{y} = 1.85 + 0.59x1 + 0.91x2 + 0.98x3 + 1.20x7$	12.056**
5. over-all	$\hat{y} = 2.19 + 0.69x2 + 0.96x3 + 1.23x7$	22.003**

Legend:

ß = beta or the x variable
x = independent variable
x1 = Analyzing
x2 = Applying Standards
x3 = Discriminating
x4 = Information Seeking
x5 = logical reasoning
x6 = predicting
x7 = transforming knowledge

α = Coefficient alpha
y = writing capability
y1 = content
y2 = correct usage
y3 = vocabulary
y4 = mechanics
* = significant
** = highly significant/strongly significant

IV. DISCUSSION

This section discusses about the multicollinearity among the subskills of critical thinking skills, students' critical thinking skills and writing capability in Filipino considering content, the significant effect of the students' critical thinking skills vs. writing capability considering content (unity, coherence and emphasis).

On Multicollinearity Test among Subskills of Students' Critical Thinking in Filipino:

As revealed in Table 1, there has no value 0.60 and above. This means that there are no correlations among the subskills critical thinking or in short, they are not correlated. In this reason a multiple linear regression is applicable to be used as a robust statistical tool for hypothesis testing. Null and alternate hypothesis are formulated prior to test of multiple linear regression.

On critical thinking skills:

Students' Critical thinking skills note a fair description (mean=2.61). Fair description of students' critical thinking skill considering the seven subskills strongly manifests students' lack of skills required to be critical thinkers. This further illustrates minimal exposures in the light of answering questions of analyzing, applying standards, discriminating, information-seeking, logical reasoning, predicting, and transforming knowledge. This can be attributed to the statements of Nolledo (2000) and Gallares (2006) which say that critical thinking is still something new to students of Philippine elementary and secondary level schools. It was only recently known in the country's educational system gave attention to teaching critical thinking skills.

On Writing Capability Considering Content:

On the other hand, students' writing capability noted a good description (mean=3.75).

Students' inability to write better compositions is due to their fair level of critical thinking skills and abilities. Good level of writing capability would mean limited exposure to exercises, drills and examinations related to critical thinking skills. It is possible if students got an overall students' critical thinking skills description of very good writing capability eventually goes higher from good to excellent.

Among the four macro skills in communication, writing is considered as the most difficult skill. It needs large amount of knowledge about different topics and knowledge in sentence construction in order to create and compose an effective writing output (Salas, 2015). Written language has to be much more careful than spoken; the writer has no chance of correcting himself on the spot if not understood. All writing consists of sentences that may be defined as series of words arranged that they express thought (Ocangas, 2010).

This good rating of students' writing capability considering content can be attributed to teachers teaching strategy in writing. According to de Castro (2004) as cited by Ocangas (2010), teaching how to write is focused on the process and not on the product or output. Organization refers to the structure or plan of development (beginning, middle, and end) and whether the points logically relate to one another. Organization also refers to (1) the use of transitional devices to relate the supporting ideas to the main idea, theme, or unifying point and (2) the evidence of a connection between sentences. Papers representing the higher end of the point scale use transitions to signal the plan of development or text structure and end with summary or concluding statements.

Moreover, Lacia (2004) states that paragraph unity can be achieved when a writer can establish connection for every sentence in the paragraph to the main idea. In other words, unity occurs when all the sentences in a paragraph directly support the topic sentence. A paragraph should be coherent to be readable. Aside from being unified and coherent, a paragraph should be emphatic. This means that the main idea should be dominant and stand out upon the supporting ideas (Salas, 2015).

On Critical Thinking Skills and Writing Capability Considering Content-Unity:

Among the seven subskills of critical thinking, that three subskills give highly significant effects on students' writing capability in terms of content-unity based on the P-Value (applying standards 0.001, discriminating 1.08E-05 and transforming knowledge 6.7E-06. Meanwhile, four components of critical thinking have no significant effect on students' writing capability considering content-unity based on the P-value (analyzing 1.11, information seeking 0.08, logical reasoning 0.66, and predicting 0.09) as revealed in Table 4.

In developing students' writing capability in terms of content-unity, it is favorable for students if they possess the three subskills of critical thinking skills (applying standards, discriminating and transforming knowledge). These three subskills are considered as tool for students to be able to create effective and substantive writing output considering content-unity. According to Scheffer and Rubenfeld (2010), applying standards refers to judging, according to established rules or criteria. This could be done if the students will be able to identify or judge the concepts or ideas according to its validity or whether the idea would be considered as facts or opinion. In like manner, discriminating is recognizing similarities and differences among things or situations and distinguishing carefully as to category or rank. Moreover, transforming knowledge is changing or converting the condition, nature, form or function of concepts among contexts.

Based on beta coefficient, it is presumed that for every increase in score of applying standards, content-unity is increased by 0.86 holding discriminating and transforming knowledge constant; for every increase in score of discriminating,

content-unity is increased by 1.10 holding applying standards and transforming knowledge constant; and for every increase in score of transforming knowledge, content is increased by 1.23 holding applying standards and discriminating constant.

It can be seen in table 4, that applying standards, discriminating, and transforming knowledge bring significant changes on students' writing capability in terms of content-unity. The effects are strongly positive as shown in the beta coefficients [0.86, 1.10, & 1.23]. This means that for every increase in score of applying standards, discriminating, and transforming knowledge, a corresponding increase in score by [0.86, 1.10, & 1.23] on students' writing capability in terms of content-unity.

Students' fair rating in applying standards, discriminating and predicting determined good content writing capability. Students were able to transform their learning in real life situations. According to Absin (2007), thinking skills are tool for writing which is supported by (Charles, 2005). He stated that a person does not only think but he also writes. He emphasized to write down every thought a person has, so as not to forget what a person thought. Improvement in writing skills is viewed of thinking.

Among the seven subskills, only applying standards, discriminating, and transforming knowledge affect writing capability considering content-unity. This can be attributed to the appropriateness of topic to the present generation "The Advantages and Disadvantages of Digital Literacy". This topic can be discussed based on their own experiences of the topic without sacrificing rules and standards in writing.

It is assumed that if the respondents are to make their own choice of topic, it is expected that only few can write excellently and satisfactorily because it has been identified that the students in general are good at content – unity, coherence and emphasis.

It can be gleaned from the table that there are three subskills of critical thinking (applying standards, discriminating, and transforming knowledge) note highly significant effects on the respondents' writing capability in terms of content-unity.

Other independent variables like analyzing, information seeking predicting, and logical reasoning, do not give significant effects on students' writing capability in terms of content-unity.

On Critical Thinking Skills and Writing Capability in Terms of Content-Coherence:

Among the seven subskills of critical thinking, only two subskills bring highly significant effects on students' writing capability in terms of content-coherence based on the P-Value (discriminating 0.0001 and transforming knowledge 1.16E-06). Meanwhile, the remaining five subskills of critical thinking do not give significant effects on students' writing capability in terms of content-coherence based on the P-value (analyzing 0.91, applying standards 0.43, information seeking 0.18, logical reasoning 0.83, and predicting 0.10) as revealed in Table 5.

In developing students' writing capability in terms of content-coherence, it is more favorable if students possess the two subskills of critical thinking (discriminating and transforming knowledge). These two subskills are considered as tool for students to be able to create effective and substantive writing output considering content-coherence. According to Scheffer and Rubenfeld (2010), discriminating refers to recognizing similarities and differences among things or situations and distinguishing carefully as to category or rank while transforming knowledge is changing or converting the condition, nature, form or function of concepts among contexts.

Beta coefficients show that for every increase in score of discriminating, writing capability in terms of content-coherence is increased by 0.76 holding transforming knowledge constant and for every increase in score of transforming knowledge, correct usage is increased by 1.24 holding discriminating constant.

On Critical Thinking Skills and Writing Capability in Terms of Content-Emphasis:

Among the seven subskills of critical thinking, four subskills (applying standards, discriminating, and transforming knowledge) bring highly significant effects on students' writing capability in terms of content-emphasis based on the P-Value (0.0009, 0.0001 and 1.89E-05) and one subskill (analyzing) gives significant effect on students' writing capability in terms of content-emphasis based on the P-value (0.04). Meanwhile, three subskills of critical thinking do not give significant effect on students' writing capability in terms of content-emphasis based on the P-value (information seeking 0.58, logical reasoning 0.67, and predicting 0.10) as revealed in Table 6.

In developing students' writing capability in terms of content-emphasis, possessing the four subskills of critical thinking (analyzing, applying standards, discriminating and transforming knowledge) are useful. These four subskills are considered as tool for students to be able to create effective and substantive writing output in terms of content-emphasis. According to Scheffer and Rubenfeld (2010), analyzing refers to separating or breaking a whole into parts to discover their nature, functions, and relationships; applying standards refers to judging according to established rules and or criteria where students are able to identify or judge concepts the concepts or ideas according to its validity; discriminating refers to recognizing similarities and differences among things or situations and distinguishing carefully as to category or rank; while transforming knowledge is students' ability to change or convert the condition, nature, form or function of concepts among contexts. These subskills can affect students' efficiency in writing output in terms of content-emphasis.

Beta coefficients show that for every increase in score of analyzing, content-emphasis is increased by 0.59 holding applying standards, discriminating, and transforming knowledge constant; for every increase in score of applying standards, content-emphasis is increased by 0.0.91 holding analyzing, discriminating, and transforming knowledge constant; for every increase in score of discriminating, content-emphasis is increased by 0.98 holding analyzing, applying standards and transforming knowledge constant; and for every increase in score of transforming knowledge, content-emphasis is increased by 1.20 holding analyzing, applying standards, and discriminating constant.

The three subskills of critical thinking (applying standards, discriminating and transforming knowledge) can affect students' writing capability in terms of content-emphasis in the sense that appropriate details and information conveys correct and relevant meaning of their writing output.

The topic or issue can be discussed thoroughly and fully using emphasis by method and emphasis by proportion. If a writer does not have enough knowledge in giving emphasis on their discussions, writing output is not readable. Thus all the sentences should give weight to the main idea to achieve quality writing output. It can be assumed then that the students' are good in writing due to good method and proportionate in giving emphasis of their topic as shown in their writing output.

It could be assumed then that students' critical thinking subskills analyzing, applying standards, discriminating and transforming knowledge positively affect students' writing capability in terms of content-emphasis, specifically in developing the topic on "The Advantages and Disadvantages of Digital Literacy".

Other independent subskills like information seeking, predicting and logical reasoning, do not give significant effects on students' writing capability in terms of content-emphasis.

Summary On the Effects of Students' Critical Thinking Skills on their Writing Capability:

Among the seven subskills, beta coefficients reveal that for every increase in score of applying standards, students' writing capability in terms of content is increased by 0.69 holding discriminating, and transforming knowledge constant; for every increase in score of discriminating, students' writing capability in terms of content is increased by 0.96 holding applying standards, and transforming knowledge constant; and for every increase in score of transforming knowledge, students' writing capability in terms of content is increased by 1.23 holding applying standards and discriminating constant.

It is assumed that students' knowledge in applying standards, discriminating, transforming knowledge are the subskills of critical thinking that affect students' writing capability in terms of content in general. Students' fair rating in applying standards and discriminating and good rating in transforming knowledge create good rating on students' writing capability in terms of content.

To write clearly, a person must think beforehand considering the different restrictions and technical standards in writing. Intensive writing drill and constant feed backing are needed to achieve quality outcome in academic research. A research paper follows procedures and processes. The point must be forceful and convincing.

Aside from the restrictions and other technical considerations, Bernales (2013) disclosed that student must think more profoundly in order to prepare for a bigger writing endeavor, the making of research paper. Thus, prior to writing research, students must practice how to organize their thoughts for a logical presentation. Furthermore, writing research requires critical thinking skills and strong stamina to face some hurtful feedbacks and criticisms.

In developing students' writing capability, students need to use their critical thinking skills. Prior to writing they should think what to write considering the different rules to follow. Filipino, students were trained by their instructors on how to write content with unity, coherence and emphasis. They were also trained to examine the correct usage of words, vocabulary usage and enhance their ability to spell out the words correctly, proper use of uppercase letters appropriate usage of punctuation marks and distinct use of indention. In writing, writers take into consideration various restrictions like not to use personal pronouns; opinions are based on facts and others.

It is clearly presented in the tables that students who have higher critical thinking skills have better writing capability. Bassham as cited by Acerdano (2013) said, *critical thinkers not only strive for clarity of language but also seek maximum clarity of thought.*

Inch & Warnick (2011, 2006, 2002, 1998, 1989), also strengen it by saying critical thinking skills require the ability to analyze, and evaluate conclusions based on a complete and coherent understanding of relevant issues.

Kurfiss cited Inch and Warnick (2011) who stated that critical thinking is 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 therefore can be convincingly justified.

Many theorists have explored critical thinking skills and the role it plays in education, in understanding the world, and in oneself. It helps one think systematically and rigorously about issues and problems that arise (Inch & Warnick, 2011).

Therefore, all educators agree that critical thinking skill is an essential attribute of an educated person (Salman, 2003). Critical thinking has led people to create ideas and inventions that make life today dramatically better than it was in the past (Rainbolt & Dyer, 2012).

V. CONCLUSION

Among the seven subskills of critical thinking only three subskills repeatedly bring significant changes on students' writing capability in terms of content. In fact, findings reveal that applying standards, discriminating, and transforming knowledge note highly significant effects on students' writing capability in terms of content. In particular, the critical thinking skills such as applying standards, discriminating, and transforming knowledge explain significantly students' capability in developing unity in writing for research. The same skills including analyzing also explain significantly students' capability in developing emphasis in writing for research, while students' capability in developing coherence in writing is explained significantly by their skills in discriminating and transforming knowledge. This further illustrates that students' scores in writing content leading to research is influenced by their critical thinking skills such as analyzing, applying standards, discriminating, and transforming knowledge. Thus, more assessments indulging activities that can develop critical thinking skills like analyzing, applying standards, discriminating and transforming knowledge should be instituted to enhance students' writing capability considering content leading to research.

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