









To cite, curriculum, Planning, Assessing and Reporting and Community Linkages got a Poor evaluation. A question on curriculum (What generalization can be assumed from the given data?), which asked how a teacher aligns objectives to lessons, got the least number of right answer. Only 19.2% of the students responded correctly. The question asked in this item made use of sample philosophy syllabus. This might be contributory to their incorrect choice because philosophy is not that related to their course, though they had it as a minor subject. Piaget has this to say: Perhaps nearly all adults are capable of reasoning at formal level but do so only on problems that hold their interest or problems that have vital importance to them [14].

This signifies that interest plays a vital role in a person’s ability to reason and to perform in a problem solving activity. In the case of education students, the item on Philosophy may not have sparked interest to them. Added to that, they might have a negative consideration of the subject, being a subject that asks one to reason.

Furthermore, in the domain Planning, Assessing and Reporting majority of the respondents (73 out of 156) showed a POOR evaluation. Considering the low performance in analysis, a critical thinking skill, it is not surprising that the students would get low in this domain of NCBTS. Indeed, as Jean Piaget asserts, knowledge comes in hierarchy. Thus, according to Hockenbury, if the difficulty will not be resolved in the lower level, more difficulty will be experienced as one is faced with more complex mental processes [15].

Table 2 exhibits the distribution of the respondents’ critical thinking skills. The table shows that students have Fair to Poor critical thinking skills. The overall mean result of 35.97 indicates that the students have FAIR critical thinking skills.

**Table 2. Distribution of the Respondents’ Level of Critical Thinking Skills [ n = 156 ]**

Over-all Level of Critical Thinking Skills	Frequency	Percentage
Very Good [ 48 – 60 ]	1	0.64
Good [ 42 - 47 ]	26	16.67
Fair [ 31 - 41 ]	66	42.31
Poor [ 0-30]	63	40.38

Mean = 35.97      Fair      sd = 6.01

Indicators	Mean	Description
1. Inference	3.40	Poor
2. Recognition of Assumption	6.67	Fair
3. Deduction	6.27	Fair

4. Interpretation	6.47	Fair
5. Synthesis	6.84	Fair
6. Evaluation of Argument	6.33	Fair

As the table further illustrates, 40.38 percent of students are Poor in this area. This poor performance is greatly influenced by the respondents’ Poor evaluation in the inference level. Inference got the lowest mean among the responses.

Ten questions were used to measure this level. The test consisted of two statements of facts. After each statement are five questions that are supposed to be verified by the students as regard the degree of their falsity or truth. Since this skill involves experience and knowledge, diversity and breadth of the scope of a person’s exposure can affect its development. With a limited observation, it is expected that inferential skill is low.

The skill in making inference does not stop only in evaluating the text using experience and knowledge; it also involves the judgment based on the direct evidence from the text.

In the case of the students, they have failed to check on the given statement. They have probably made assumptions rather than reason according to what the given statements in the test paper provide. What the students exhibited is perhaps the common phenomenon of understanding without the use of reasoning.

According to Ruggiero, this is just an intuition [5]. He further states that such activity is just a starting point of the thinking process and not its end and that “the only conclusion worth drawing is one based on a thorough understanding of the problem or issue and its possible solutions or resolution”. Therefore to arrive at the correct inference, the students could have used their prior knowledge (as they read through the given passage and understood it). They are supposed to disregard personal biases.

This explains why the total performance of the test is Fair. Expectedly, they have Fair performance in the whole test. Forcier contends “learners must be provided with a rich environment of sensory experiences, to which they will respond in a problem-solving fashion in order to build understanding” [16]. With good college experience, thinking skills are enhanced. In a study of Terenzini, he found out that college experience is significantly related to students’ critical thinking skills [19].

Moreover, the table illustrates that among the indicators, synthesis got the highest mean (6.84). This signifies that the students are almost good in the synthesis level of thinking

The result of this study supports the claims of some researchers that students are still falling behind in their critical thinking skills. In a recent study of Absin [17], whose respondents are high school students, declared that the students’ level of critical thinking skills is generally fair. Also, the study of

Torres, whose respondents are college students, reveal that students have low critical thinking skills [18]. These are just few of the many studies that point to the fact that although critical thinking has long been an issue, it is a demand that persists to be addressed.

This can be supported by the study of Cruce et al. [20]. In their study, they have found out consistent evidence that the principles of good practices have positive impact on the cognitive development, learning orientations, and educational aspiration of students

**Table 3. Results of Simple Linear Regression Analysis between the Students' Evaluation of NCBTS and Their Level of Critical Thinking Skills**

Independent Variable	Regression Coefficient	T-Value	Probability	R
Evaluation of NCBTS	0.78	8.21	$8.15 \times 10^{-14}$	**

Constant: 23.81 F – value : 67.46\*\*  
R : 0.55 Significance Level :  $8.15 \times 10^{-14}$

$R^2$  : 0.30

Table 3 exhibits the result of simple linear regression analysis taking the students' evaluation of NCBTS as an independent variable and their level of critical thinking skills as the dependent variable to show the degree of the influence one affects the other.

The result reveals that the two variables have a highly significant positive effect ( $r = 0.55$ ) on each other. This denotes that the higher the level of NCBTS students, the higher is the level of their critical thinking skills. The coefficient of determination ( $r^2 = 0.30$ ) denotes that only 30 percent of the difference on the level of critical thinking skills is being explained by the level of NCBTS learned and 70 percent can be explained by other factors.

The regression model  $\hat{y} = 23.81 + 0.78x$  indicates that the coefficient of a or the y intercept is 23.81. This means that when the level of NCBTS learned is 0, the level of critical thinking skills acquired is 23.81. However, this prediction is not credible because the scores of the students in NCBTS is between 7 to 24.

The coefficient of b is 0.78. This means that for every change in NCBTS learned, the level critical thinking skills changes by 0.78 point. The null hypothesis is rejected because the test of significance shows a highly positive linear relationship between the level of NCBTS learned and the level of critical

thinking skills acquired. This further indicates that the higher the level of NCBTS learning, the greater is the level of critical thinking skills.

## 6. Conclusions and Implications

Education formation is very important to the development of critical thinking skills of students. Through a formation that is holistic like the NCBTS, various forms of thinking and strategies provide opportunities where students develop their cognitive abilities. Through the students' exposure to the different domains in NCBTS, they gradually assimilate new knowledge and accommodate them in order to carry out their daily experience. This is best referred to as formation because students do not use only their knowledge but their attitude and habit in situations given to them.

There appears a significant relation of NCBTS to critical thinking in that the mental activities entailed by the domains of the NCBTS poses a great influence on the critical thinking skills of students. The skills and knowledge acquired from the understanding and practice of these domains contribute to the development of thinking process which proceeds from simple to complex. Once they are habitually used, they form into higher level until they reach the formal operational stage, the highest form of thinking a man can reach, according to Piaget.

## 7. References

- [1] Hernon, P., et al. (2006). Revisiting Outcomes Assessment in Higher Education. USA: Libraries Unlimited.
- [2] Teacher Education Council (2009). Experiential Learning Courses Handbook, Philippines: Teacher Education Council, Department of Education.
- [3] Elder, L. and Paul, R., (2009). Critical Thinking: A Stage Theory Of Critical Thinking: Part II. Common Ground Journal  
[v7n1www.insightassessment.com/pdffiles/what&why2009.pdf](http://www.insightassessment.com/pdffiles/what&why2009.pdf). Retrieved February 13, 2011 from EBSCO
- [4] Slavin, R. E., (2000). Educational Psychology (6th edition). Boston: Allyn and Bacon
- [5] Ruggiero, V. R., (2001). Beyond Feelings-A Guide to Critical thinking (6th edition). USA: Mayfield Publishing Company
- [6] Trochim, W. M. K., (2006). Deductive and Inductive Reasoning. Retrieved from  
<http://www.socialresearchmethods.net/kb/dedind.php>
- [7] Facione, P., (2009). "Critical Thinking: What It Is and Why It Counts. Pearson Education.  
[http://www.insightassessment.com/pdf\\_files/what&why2009.pdf](http://www.insightassessment.com/pdf_files/what&why2009.pdf)

[8] Bruning, R. H. et al., (2004). *Cognitive Psychology and Instruction* (4th edition). New Jersey: Pearson Prentice Hall. *Critical Thinking: Part II. Common Ground Journal* v7n1 www.commongroundjournal.org. Retrieved from Academic Source Complete.

[9] Darch, Craig B. and Kame Enui, Edward J. (2004). *Instructional Classroom Management – A Practice Approach to Behavior Management* (2nd edition). New Jersey: Pearson Education, Incorporation.

[10] Afe, J. O., (2008). “Reflections on Becoming A Teacher And The Challenges Of Teacher Education”. Nigeria: University of Benin. Retrieved February 20, 2011 from Academic Source Complete

[11] Walsh, C. and Hardy, R. C., (1999). Dispositional Differences in Critical Thinking Skills related to gender and academic major. *Journal Of Nursing Education* volume 38 number 4. Retrieved from Academic Source Complete

[12] Pascarella, Ernest T., et al. (2005) *College Affects Students-A Third Decade of Research* (volume 2) USA: John Wiley and Sons, Inc.

[13] William, R. L., (2005) “Teaching Critical Thinking Within Teacher Education: The Potential Impact On Society”. *The Teacher Education* volume 40 number 3. Knoxville:

[14] Shaffer, D. R., (2002) .*Childhood And Adolescence-developmentl Psychology* 6th edition). USA: Wadsworth Group, Division of Thomson Learning.

[15] Hockenbury, Don H., et al. 2000. *Psychology* (2nd edition). USA: Worth Publishers.

[16] Forcier, R., (1999). *(The Computer As An Educational Tool* 2nd edition). New Jersey: Merrill Prentice Hall.

[17] Absin, C., Rose Baylon (2010) *The Quality of Instructional Objectives and Assessment Instruments in Science: Its Implications To High School Students’ Critical Thinking Skills*, Colegio de Santo Ninno de Jasaan”. March 2010, Xavier University-Ateneo de Cagayan, Philippines

[18] Torres, R. S., *Information Technology Usage: Its Enabling Effects on the development of Learners’ Critical Thinking* . Xavier University-Ateneo de Cagayan, Cagayan de Oro City, Philippines

[19] Terenzini, P., (1993) *Influences Affecting The Development of Students’ Critical Thinking Skills*. Assdociation for International Research .New Orleans, LA.

[20] Cruce, T. M., Wolniak, G. C., Seifert, T. A., & Pascarella, E. T. (2006). Impacts of good practices on cognitive development, learning orientations, and graduate degree plans during the first year of college. *Journal of College Student Development*, 47(4), 365-365-383. Retrieved from <http://search.proquest.com/docview/195180951?accountid=31223>