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Critical Thinking of College Students: Inputs to Teacher Education Curriculum

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ABSTRACT This research aimed to find out the significance of critical thinking among the third year college students of the Philippine Normal University. The study sought to answer the following questions: 1) what is the profile of the respondents with regards to faculty, majorship and sex; and 2) what are the respondents' scores and levels on critical thinking. The following conclusions have been drawn on critical thinking: 1) Both faculty and sex in general are below average; 2) The significant findings are in the majorship and when combined with sex; 3) Only the male students of the Faculty of Education Sciences have an average level; 4) The Bachelor of Elementary Education majors are the highest with an average level; 5) The males of the Bachelor of Elementary Education are the highest with an above average level; and 6) The females of BS Psychology gained the highest with an average level.

Keywords: Critical Thinking, Cognition, Teacher Education

Introduction

Cognition determines the kind of life and the purpose for living in every individual process. It is the cognitive duty to comprehend about things, to label and categorize things, and to put them in their proper perspective. The capacity to think

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has created loads of trivial knowledge about the world and its surroundings. There is an unlimited body of knowledge to be learned from the interactions with the world. Today, numerous ways of cognitive breakthroughs led to the improvement of man so as to have a better society.

"It is the intellect that leads man to a continued emergence above the rubbles and indigenousness of the world. It is through the same cognition that man is able to make the world a better place that would benefit humankind" (Chaiphuang, 2008). A sharpened mind notices what is wrong about a certain moral principle. It takes a critical mind to recognize deficiencies or abuses of man towards the society and the self. It is through a critical eye that one can notice the errors of modern society. Man has the ability to spearhead future frontiers and also has the ability to annihilate tomorrow. Critical thinking is, indeed, an important guide to proper living and decision-making to solve problems. Critical thinking can be improved in many ways and it is a great thing to train this cognitive mind to analyze, memorize, relate, and evaluate the world.

According to a Socratic principle (2008): The unexamined life is not worth living, because many unexamined lives together result in an uncritical, unjust, and dangerous world.

Glaser (1964) defined critical thinking on three things. First, it is an attitude of being disposed to consider in a thoughtful way the problems and subjects that come within the range of one's experiences. Second, it is the knowledge of the methods of logical inquiry and reasoning. Lastly, it is some skill in applying those methods. With this process, cognition has been developed through time, with each mind being formed and developed at the present. Moreover, Watson and Glaser (1964) stated that there are five critical thinking skills. These are inference (evaluate the validity

of inferences drawn from a series of factual statements), recognition of assumptions (identify unstated assumptions or presuppositions in a series of assertive statements), deduction (determine whether certain conclusions necessarily follow from the information in given statements), interpretation (weigh evidence and decide if generalizations or conclusions based on the given data are warranted), and evaluation of arguments (distinguish between arguments that are strong and relevant and those that are weak or irrelevant to a particular question or issue).

Paul and Elder (2008) are keenly aware of the inherently flawed nature of human thinking when left unchecked. Critical thinking strives to diminish the power of egocentric and sociocentric tendencies. It uses the intellectual tools that critical thinking offers --- concepts and principles that enable analysis, assessment, and improvement of thinking. Paul and Elder also stated that critical thinking works diligently to develop the intellectual virtues of intellectual integrity, intellectual humility, intellectual civility, intellectual empathy, intellectual sense of justice, and confidence in reason. Individuals possessing critical thinking realize that no matter how skilled they are as thinkers, they can always improve their reasoning abilities and they will at times fall prey to mistakes in reasoning, human irrationality, prejudices, biases, distortions, uncritically accepted social rules and taboos, self-interest, and vested interest. They strive to improve the world in whatever ways they can and contribute to a more rational civilized society. At the same time, these individuals with critical thinking skills recognize the complexities often inherent in doing so. To avoid thinking simplistically about complicated issues and strive to appropriately consider the rights and needs of relevant others, they recognize the complexities in developing as thinkers, and commit themselves to lifelong practice toward self-improvement.

Paul (1996) has viewed that critical thinking skills are integrated within the individual with insights into thinking and feeling processes. Critical thinking starts with a question and does not occur unless a problem has blocked customary patterns. When questions start, it can be a sign to engage into critical thinking.

Critical thinking is the use of cognitive skills or strategies that increase the probability of a desirable outcome. Critical thinking is sometimes called directed thinking because it focuses on a desired outcome (Halpern, 1996). The purpose of critical thinking is, therefore, to achieve understanding, evaluate viewpoints, intellectual honesty, and solve problems with reason, as opposed to emotionalism, intellectual laziness and closed-mindedness. It is reasonable thinking that is reflective on deciding what to believe and do.

Critical thinking should not be confused, however, with being argumentative or being critical of other people. Critical thinkers are able to deduce consequences from what they know, know how to make use of information to solve problems, and to seek relevant sources of information to inform them.

Men are always confronted by conflicts that need a sound decision-making in order to solve problems. According to Organ (1996), to ensure a proper and positive way of thinking in confronting problem-solving and decision-making process, it necessitates a mind to possess critical thinking. Heidegger (2002) had believed that "man is called the being who can think…and therefore must be capable of thinking if he really wants to." Man is a constant thinker and never stops thinking, but it's the depth and the process of thinking that gives it meaning. Critical thinking must be enriched and enhanced to mold the mind in doing the right thing that is of benefit to the self and others at the same time.

Critical thinking is best understood as the ability to take charge of one's own thinking (Elder and Paul, 1994). It is a quality that each individual must actualize to be functional in everyday daily life, this cognitive process gives facets of what life is all about. If one possesses critical thinking, a good remediation or solution can be achieved.

It is also interesting to note that critical thinking cannot be taught directly, but can be learned through time as the individual progresses to maturity. Critical thinking takes time to function fully in every individual. It is developed through different nurturance and experiences encountered in everyday life. It is molded inside and outside the classroom. In the classroom, it can be instilled in the lesson's objectives, strategies, and techniques used by the teacher, facilitating activities and the kind of quizzes or examinations. Hence, it is of primary concern that critical thinking is developed and instilled among the youth, especially the students. This research thus seeks to find out if the students have developed critical thinking at this stage of being a junior college student and if they are prepared in life after graduation.

Critical thinking calls for a persistent effort to examine any belief or supposed form of knowledge in the light of the evidence that supports it and the further conclusions to which it tends. It is essential as a tool of inquiry. As such, critical thinking is a liberating force in education and a powerful resource in one's personal and civic life. Thus, educating good critical thinkers means working toward this ideal. It combines developing critical thinking skills with nurturing those dispositions which consistently yield useful insights and which are the basis of a rational and democratic society.

Critical thinking works within the confine of existing information and knowledge. This research is all about emerging thought in the field of teacher education and in psychology. It will be expanded in order to expound into

multidisciplinary learning process; since, most researches have delved into intelligence quotient (IQ), aptitude, and mental ability, but not much in critical thinking on the PNU students.

The project study seeks to find out if critical thinking is instilled within the students with regard to faculty, majorship, and sex. The study will somehow measure the readiness of the students when about to do actual teaching performance respectively to the courses/majorships when questions arise from the students during class discussion. Furthermore, the potentials of these students must be perceived more at an early stage before graduating and becoming a professional adult in encountering the future. It will enhance the importance and values of critical thinking in their lives as well with relationships to all those that surround them. This is also in response to the mission and vision of PNU in developing transformative leaders to be who must be endowed in possessing critical thinking. Hereon, the hope to have a better tomorrow can be adhered and admonished if teachers do possess critical thinking.

Conceptual Framework

Figure 1 illustrates the framework of Critical Thinking of College Students: Inputs to Teacher Education Curriculum. The goal of the study is to determine the critical thinking of the respondents based on the personal profile of the junior collegiate students. It shows the scope of the entire study in order to be enlightened on the flow of this research.

The study was designed to determine the critical thinking of the students at the Philippine Normal University (PNU), the National Center for Teacher Education (NCTE), as part of producing quality teachers in this advent of

competitive globalization. It is but fitting that PNU should put this into consideration for their students, since teachers to be, who are models of the future generation, must highly possess critical thinking. The product of which may attract international audience since PNU seeks to promote delivery of knowledge, information, and service in education. In this study, it focuses on critical thinking in terms of sex, majorship, and faculty.

It delineates the respondents on the criteria in terms of faculty, majorship, sex, and being in the third year tertiary level on the main campus, Manila. Twenty-six (26) programs belonging to four faculties and two institutes respectively serve as the context of the study: Faculty of Arts and Languages – FAL (English, Filipino, Literature, Music Education, Speech and Theater Arts); Faculty of Behavioral and Social Sciences – FBeSS (History, Social Science, Values Education, and Psychology); Faculty of Education Sciences – FES (Early Childhood Education, Elementary Education, Home Economics, and Nutrition and Dietetics for Teachers); and the Faculty of Science, Technology, and Mathematics - FSTeM (General Science, Biology, Biology for Teachers, Chemistry, Chemistry for Teachers, Physics, Physics for Teachers, Physics and Technology, Mathematics and Mathematics for Teachers). In addition, the two institutes: Institute of Knowledge Management – IKM (Library and Information Science, Information and Technology Education); and the Institute of Physical Education, Health, Recreation, Dance and Sports - IPEHRDS (Physical Education).

The quantitative results of the Watson-Glaser Critical Thinking Appraisal (1964) of the respondents will provide the data for the personal profile; and consequently, be further classified qualitatively into three levels: above average, average, and below average.

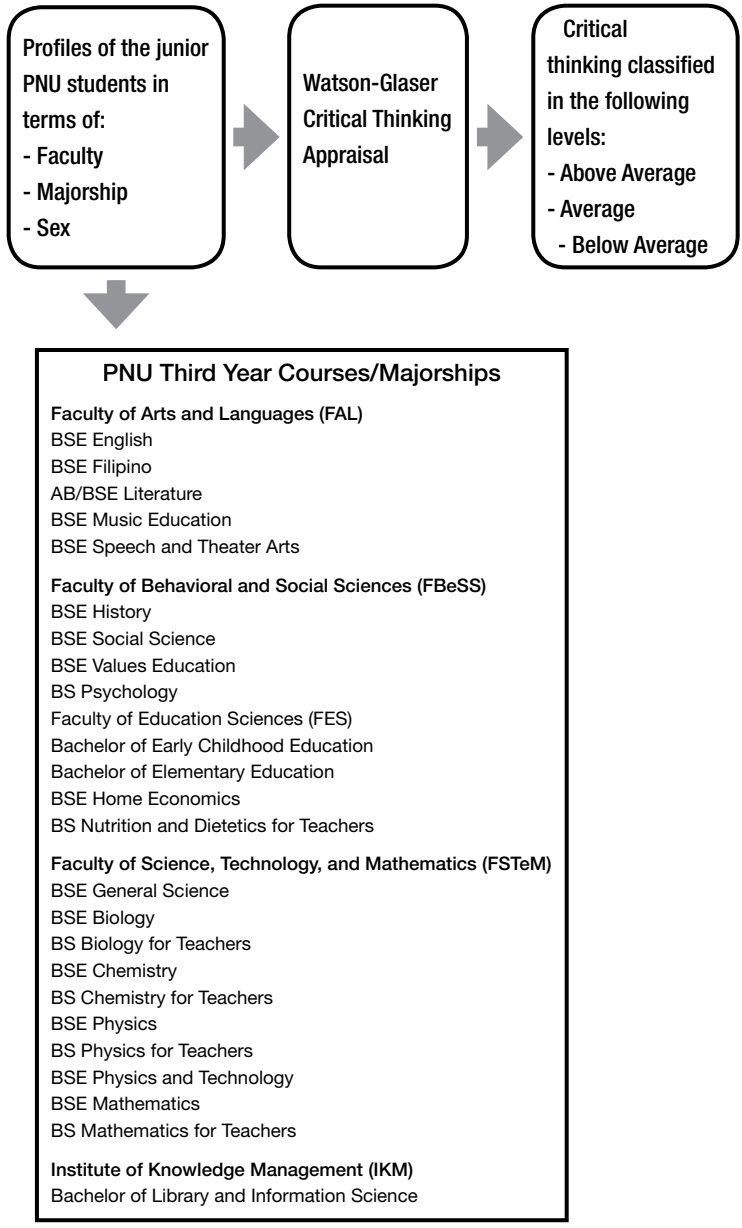

Figure 1. Conceptual Framework of Critical Thinking of College Students: Inputs to Teacher Education Curriculum

Statement of Purpose/Objectives

This research aimed to find out the significance of critical thinking among the third year students of Philippine Normal University, Manila. Specifically, the study sought to shed light on the following questions:

1. What is the personal profile of the respondents with regard to:
   a. Faculty,
   b. Majorship, and
   c. Sex.
2. What are the mean scores and levels of the respondents on Critical Thinking in terms of:
   a. Faculty,
   b. Majorship, and
   c. Sex.

Methodology

The study utilized the descriptive comparative research design. It focused to gather relevant information about the present conditions of the respondents with regard to faculty, majorship, and sex of the third year college students of Philippine Normal University (PNU) in reference to their existing mindset on critical thinking. Its output can significantly contribute if the aim is to truly live to its expectations of producing quality teachers and the right to be noted as the National Center for Teacher Education (NCTE) by virtue of R.A. 9647.

The third year students of PNU were preferred as the sample because this stage of growth serves as a preparatory development for knowing their critical thinking that can be enhanced as they progress before graduating. Also, at this juncture more or less the junior collegiate students have already gained more knowledge and experiences from

their first and second years. Piaget (1999) stated that at approximately age 12, the child develops critical thinking. Piaget's development calls for formal operation that is the ability to abstract, analyze, synthesize, and to form true concepts and manipulate them symbolically. The junior college students can incorporate critical thinking within the system of their personality and be a part of their becoming a model for the students.

All the respondents were incidentally selected through purposive non-probability and stratified probability sampling methods in identifying the faculty, majorship, sex, section, and year level. The basis for the number of samples was based on the section with the least number of students regardless of majorship, and from this basis, the obtained number was ten (10). Hereon, a random sampling was made as to which section in the third year level for each majorship is represented. After identifying the specified section, a random sampling was again used to determine the ten (10) respondents of the majorship for the study. Since a random sampling was utilized, it so happened that there were sections with no male students. Moreover, in terms of ratio, there are really more females than the male population enrolled in PNU.

The researcher employed the psychological standardized test Watson-Glaser Critical Thinking Appraisal (1964) —their instrument contains a total of 100 items applicable for high school students and adults. The test can be accomplished in 55 minutes. The respondents are made to answer by selecting the option which they think is the best for them and not based on the feelings of others. A mark is made by blocking the choice on the answer sheet provided. An answer key is used in scoring. The individual scores are summed up according to sex, majorship, and faculty to get the mean scores respectively.

The mean scores garnered from the personal profile have a corresponding qualitative interpretation on the level of critical thinking as based on stanine: stanine of 9 is qualified as above average with mean scores of 80 and above; stanine of 8 as above average with mean scores of 74-79; stanine of 7 as above average with mean scores of 69-73; stanine of 6 as average with mean scores of 63-68; stanine of 5 as average with mean scores of 58-62; stanine of 4 as average with mean scores of 53-57; stanine of 3 as below average with mean scores of 47-52; stanine of 2 as below average with mean scores of 41-46; and stanine of 1 is qualified as below average with mean scores of 40 and below.

Results and Discussion

The data gathered were presented in tables and were described and discussed in narrative form.

Personal profile of the respondents with regard to faculty, majorship, and sex.

Table 1 presents that the Philippine Normal University - Manila has four (4) faculties with respective programs: Faculty of Arts and Languages – FAL (English, Filipino, Literature, Music Education, Speech and Theater Arts); Faculty of Behavioral and Social Sciences – FBeSS (History, Social Science, Values Education, and Psychology); Faculty of Education Sciences – FES (Early Childhood Education, Elementary Education, Home Economics, and Nutrition and Dietetics for Teachers); and the Faculty of Science, Technology, and Mathematics - FSTeM (General Science, Biology, Biology for Teachers, Chemistry, Chemistry for Teachers, Physics, Physics for Teachers, Physics and Technology, Mathematics and Mathematics for Teachers). The two institutes are: Institute of Knowledge

Management – IKM (Library and Information Science, Information and Technology Education); and the Institute of Physical Education, Health, Recreation, Dance and Sports - IPEHRDS (Physical Education).

All in all, the twenty-six (26) different majorships did not vary from the number of respondents because every majorship supposedly has ten (10) samples from the classes randomly selected. Some majorships do not have male respondents because of the use of random sampling; and, since there are more female students, it is really possible not to have male respondents in a particular section.

Table 1 establishes the profile of the respondents with regard to sex. From the total respondents of 260, 54 (20.77%) are males, and the remaining 206 (72.23%) are females. The Faculty of Science, Technology, and Mathematics (FSTeM) has the most number of male and female respondents because it has the most number of majorships; whereas, the other faculties have almost the same number of programs. The BSE History and BS Chemistry for Teachers both have the most number of male respondents with six. For female respondents, BSE Home Economics, BSE Values Education, BSE English, BS Nutrition and Dietetics for Teachers and BSE Chemistry all have ten (10) female respondents, since there are no male respondents.

Table 1. Profile of the Respondents on Faculty, Majorship and Sex

Faculties and Majorships	Male		Female		Total
Faculty of Arts and Languages (FAL)	f	%	f	%	
Bachelor of Secondary Education in English (BSE English)	0	0	10	3.85	10
Bachelor of Secondary Education in Filipino (BSE Filipino)	1	0.39	9	3.46	10
Bachelor of Secondary Education in Music (BSE Music)	4	1.54	6	2.31	10
Bachelor of Secondary Education in Speech and Theater Arts (BSE STA)	2	0.77	8	3.08	10
Bachelor of Arts/Bachelor of Secondary Education in Literature (AB/BSE Lit.)	1	0.39	9	3.46	10
Total	**8**	**3.08**	**42**	**16.15**	**50**
Faculty of Behavioral and Social Sciences (FBeSS)					
Bachelor of Secondary Education in History (BSE History)	6	2.31	4	1.54	10
Bachelor of Secondary Education in Social Science (BSE Soc.Sci.)	3	1.15	7	2.7	10
Bachelor of Secondary Education in Values Education (BSE VE)	0	0	10	3.85	10
Bachelor of Science in Psychology (BSP)	3	1.15	7	2.7	10
Total	**12**	**4.62**	**28**	**10.77**	**40**
Faculty of Education Sciences (FES)					
Bachelor of Early Childhood Education (BECEd)	1	0.39	9	3.46	10
Bachelor of Elementary Education (BEEd)	1	0.39	9	3.46	10
Bachelor of Secondary Education in Home Economics (BSE HE)	0	0	10	3.85	10

Bachelor of Science in Nutrition and Dietetics for Teachers (BSNDT)	0	0	10	3.85	10
Total	**2**	**0.77**	**38**	**14.62**	**40**
Faculty of Science, Technology, and Mathematics (FSTeM)					
Bachelor of Science in Biology for Teachers (BSBT)	2	0.77	8	3.08	10
Bachelor of Science in Chemistry for Teachers (BSCT)	6	2.31	4	1.54	10
Bachelor of Science in Mathematics for Teachers (BSMT)	1	0.39	9	3.46	10
Bachelor of Science in Physics for Teachers (BSPT)	5	1.92	5	1.93	10
Bachelor of Secondary Education in Biology (BSE Biology)	1	0.39	9	3.46	10
Bachelor of Secondary Education in Chemistry (BSE Chemistry)	0	0	10	3.85	10
Bachelor of Secondary Education in General Science (BSE General Science)	2	0.77	8	3.08	10
Bachelor of Secondary Education in Mathematics (BSE Math)	1	0.39	9	3.46	10
Bachelor of Secondary Education in Physics (BSE Physics)	1	0.39	9	3.46	10
Bachelor of Secondary Education in Physics and Technology (BSEPT)	5	1.92	5	1.93	10
Total	**24**	**9.23**	**76**	**29.23**	**100**
Institute of Physical Education, Health, Recreation, Dance, and Sports					
Bachelor of Secondary Education in Physical Education (BSE PE)	2	0.77	8	3.08	10
Total	**2**	**0.77**	**8**	**3.08**	**10**
Institute of Knowledge Management					
Bachelor of Library and Information Science (BLIS)	2	0.77	8	3.08	10

Bachelor of Science in Information and Technology Education (BSITE)	4	1.54	6	2.31	10
Total	**6**	**2.31**	**14**	**5.38**	**20**
Sum Total (N)	**54**	**20.77**	**206**	**72.23**	**260**

Mean scores of the respondents on Critical Thinking in terms of faculty, majorship, and sex.

The Watson-Glaser Critical Thinking Appraisal (WGCTA) by Watson and Glaser (1964) was used in establishing the critical thinking of the students. Table 2 defines the mean scores gathered from WGCTA to determine the aspects of critical thinking of the respondents' profile clustered in terms of faculty, majorship, and sex.

Faculty

Table 2 projects that in terms of faculty, the critical thinking of all the faculties and institutions is generally below average; although, the Faculty of Education Sciences (FES) is considered with the highest mean score of 51.80. The Institute of Physical Education, Health, Recreation, Dance and Sports (IPEHRDS) has the lowest mean score of 47.26.

Majorship

It establishes that the Bachelor of Elementary Education majors, in terms of majorship, have the highest mean score of 59.17 in critical thinking which is above average. Along with the Bachelor of Elementary Education majors, it is succeeded by the students of BSE English, AB/ BSE Literature, BS Nutrition and Dietetics for Teachers, and BS Mathematics for Teachers have an average score in critical thinking. The BSE Biology majors, with the mean score of 43.39 obtained the lowest mean score in critical thinking. The cited significant findings are found when it comes to the majorships.

Sex

While in terms of sex, the male students (x = 49.69) are better than the female students in general (x = 49.25); although, both sexes have below average interpretation in critical thinking.

With faculty and sex combined, the male students of the Faculty of Education Sciences (FES) obtained the highest total mean score (60.50) interpreted as average. On the other hand, the Institute of Physical Education, Health, Recreation, Dance and Sports (IPEHRDS) male students has the lowest mean score 46.00 in critical thinking. Subsequently, both the males of FES and IPEHRDS likewise comprise the highest and lowest mean scores respectively for the whole faculty in critical thinking. In addition, on the part of the female students, the Institute of Knowledge Management (IKM) obtained the highest total mean score (51.84). The Faculty of Education Sciences (FES) femlales got the lowest (48.24) in critical thinking as compared to their counterpart, got the highest among the faculties.

For majorship and sex together, the males in Bachelor of Elementary Education got the highest mean score (69.00) which is above average. The males of BSE Physics obtained the lowest mean score (37). The aforementioned mean scores of the males also represent the highest and lowest scores over all in terms of majorships and sex in critical thinking. Next to Bachelor of Elementary Education, it is followed by the males of AB/BSE Literature, BSE Music, BSE History, BS Mathematics for Teachers, and BS Physics for Teachers do have an average in critical thinking.

For the female side, BS Psychology majors got the highest mean score (58.14), interpreted as average; and, the BSE Social Science has the lowest (41.57). Both the highest and lowest mean scores are from the Faculty of Behavioral

and Social Sciences (FBeSS), among all the total samples of females in the different majorships. After the females of BS Psychology majors, the female respondents of BSE English, BS Nutrition and Dietetics for Teachers, BS Chemistry for Teachers, and BS Information Technology Education majors also obtained average rating in critical thinking.

In sum, the Faculty of Education Sciences (FES) is considered as the highest in critical thinking, despite having a below average equivalence. It is also significant to know that within the faculty of FES, the Bachelor of Elementary Education majors got the only above average qualitative interpretation for critical thinking as compared to the other programs or majorships with below average. The male students of FES in particular must be cited and recognized as the only one with an average in critical thinking among others. To top it all, the male students of the Bachelor of Elementary Education must be highly commended as the overall highest and specifically the one and only with an above average in critical thinking.

The highest and lowest scores of the said discussions means that the respondents have either the most or least on attitudes, knowledge, and skills accordingly to the results obtained. This composite includes: attitudes of inquiry that involve an ability to recognize the existence of problems; finding workable means for meeting those problems; gathering and marshalling pertinent information; identifying unstated assumptions and values; comprehending and using a language with accuracy, clarity and discrimination; accepting the general need for evidence in support for what is asserted to be true; interpreting data; appraising evidence and evaluating statements; distinguishing the existence of logical relationships between propositions; knowing of the nature of valid inferences, abstractions, and generalizations in which the weight or accuracy of different kinds of evidence are

logically determined; drawing warranted conclusions and generalizations; testing the generalizations and conclusions at which one arrives; reconstructing one's patterns of beliefs on the basis of wider experience; rendering accurate judgments about specific things and qualities in everyday life; and skills in using and applying the above attitudes and knowledge (Watson and Glaser, 1964).

Table 2. Mean Scores of the Respondents on Critical Thinking

MAJORSHIP	CRITICAL THINKING				TOTAL MEAN SCORES	OVERALL INTERPRETATION
	MALE		FEMALE			
	Mean Score	Interpretation	Mean Scores	Interpretation		
Faculty of Arts and Languages (FAL)						
BSE English	0	-	52.7	Average	52.7	Average
BSE Filipino	49.00	Below Ave.	46.66	Below Ave.	47.83	Below Ave.
AB/BSE Literature	60.00	Average	47.9	Below Ave.	53.95	Average
BSE Music	52.50	Average	47	Below Ave.	49.75	Below Ave.
BSE Speech and Theater Arts	42.00	Below Ave.	48.015	Below Ave.	45.01	Below Ave.
Total Mean Scores	**50.88**	**Below Ave.**	**48.46**	**Below Ave.**	**49.85**	**Below Ave.**
Faculty of Behavioral and Social Sciences (FBeSS)						
BSE History	51.67	Average	49.5	Below Ave.	50.59	Below Ave.
BSE Social Science	51.33	Below Ave.	41.57	Below Ave.	46.45	Below Ave.
BSE Values Education	0	-	45.3	Below Ave.	45.3	Below Ave.
BS Psychology	44.67	Below Ave.	58.14	Average	51.41	Below Ave.
Total Mean Scores	**49.22**	**Below Ave.**	**48.63**	**Below Ave.**	**48.44**	**Below Ave.**
Faculty of Education Sciences (FES)						
Bachelor of Early Childhood Education	52.00	Below Ave.	43.22	Below Ave.	47.61	Below Ave.
Bachelor of Elementary Education	69.00	Above Ave.	49.33	Below Ave.	59.17	Above Ave.
BSE Home Economics	0	-	46.3	Below Ave.	46.3	Below Ave.
BS Nutrition and Dietetics for Teachers	0	-	54.1	Below Ave.	54.1	Average
Total Mean Scores	**60.50**	**Average**	**48.24**	**Below Ave.**	**51.80**	**Below Ave.**

Faculty of Science, Technology and Mathematics (FSTEM)						
BS Biology for Teachers	44.50	Below Ave.	46.375	Below Ave.	45.44	Below Ave.
BS Chemistry for Teachers	49.51	Below Ave.	54.5	Average	52.01	Below Ave.
BS Mathematics for Teachers	56.00	Average	50.66	Below Ave.	53.33	Average
BS Physics for Teachers	54.67	Average	51	Below Ave.	52.84	Average
BSE Biology	43.00	Below Ave.	43.78	Below Ave.	43.39	Below Ave.
BSE Chemistry	0	-	45.8	Below Ave.	45.8	Below Ave.
BSE General Science	46.50	Below Ave.	48.89	Below Ave.	47.70	Below Ave.
BSE Mathematics	46.00	Below Ave.	50.67	Below Ave.	48.34	Below Ave.
BSE Physics	37.00	Below Ave.	51.22	Below Ave.	44.11	Below Ave.
BSE Physics and Technology	52.20	Below Ave.	50.6	Below Ave.	51.40	Below Ave.
Total Mean Scores	**47.71**	**Below Ave.**	**49.35**	**Below Ave.**	**48.44**	**Below Ave.**
Institute of Physical Education, Health, Recreation, Dance and Sports (IPEHRDS)						
BSE Physical Education	46.00	Below Ave.	48.51	Below Ave.	47.26	Below Ave.
Total Mean Scores	**46**	**Below Ave.**	**48.51**	**Below Ave.**	**47.26**	**Below Ave.**
Institute of Knowledge Management (IKM)						
BS Information Technology Education	45.00	Below Ave.	55.17	Average	50.09	Below Ave.
Bachelor of Library and Information Science	51.00	Below Ave.	48.51	Below Ave.	49.76	Below Ave.
Total Mean Scores	**48**	**Below Ave.**	**51.84**	**Below Ave.**	**49.93**	**Below Ave.**
Sum Total Mean Scores	**49.69**	**Below Ave.**	**49.05**	**Below Ave.**	**49.29**	**Below Ave.**

Legend		
Mean Scores	**Stanine**	**Interpretation**
69-90	7-9	Above Average
53-68	4-6	Average
52 and below	1-3	Below Average

Conclusions

In general, in terms of the faculty and sex, both profiles show below average in critical thinking. This implicates that most of the students may not be ready in the actual field of the teaching profession, as when asked some delicate concerns of the subject matter. As teachers, they might be highly technical on what they are teaching but when out of the box difficulty can result. The significant findings lie in the majorship and when it is combined with sex. It implies the need to further develop the critical thinking of most students through enriching the curriculum's objectives and outputs and enhancing the teacher's capabilities in teaching methodology. The BEEd majors in terms of majorship obtained the highest with an above average level in critical thinking. Thus, majorship of the students can be a factor in instilling critical thinking in that could reflect the quality of the curriculum and teachers in the majorship. The male students of the Faculty of Education Sciences (FES) are the only ones that got an average score in critical thinking. This shows that they have the potential to be not only teachers but as professional adults in dealing with the future regarding their lives and relationships to all those that surround them. Specifically, the BEEd males got the highest with an above average in critical thinking. Followed by the males of AB/ BSE Literature, BSE Music, BSE History, BS Mathematics for Teachers, and BS Physics for Teachers which have an average in critical thinking. The findings in this study can somehow be identifiable to PNU's agenda for being able to promote delivery of knowledge, information, and service in education. In general, the University is able to achieve its aim as NCTE. The females of BS Psychology gained the highest average in critical thinking followed by the females of BSE English, BS Nutrition and Dietetics for Teachers, BS Chemistry for Teachers, and BS Information Technology Education which also garnered an average in critical thinking.

Along with the findings on the critical thinking of males, the result of their counterparts revealed the difference in the programs of the different faculties. For instance, the females of the BEEd are below average. This difference can conclude that majorship and sex as compatible variables in considering in developing critical thinking.

Recommendations

Primarily, critical thinking must be considered within the context of the curriculum as based on the findings of the study. In addition to the competency-based curriculum being developed for the PNU students, critical thinking must be acknowledged that it needs to be enhanced for future living which could be manifested in the curricular objectives and outputs.

The syllabus must be analyzed well on how to incorporate the development of critical thinking. The current syllabus pattered on the OBTEC can indicate how it has improved the critical thinking of the students. This, therefore, entails further study as a follow-up on the Outcome-Based Teacher Education Curriculum syllabus regarding critical thinking, especially on the different faculties, majorship and sex. Programs or action plans and activities must be developed among the different faculties, as well as majorships. After all, experiences can contribute in the development of critical thinking. Critical thinking must likewise be embedded in the strategies and techniques of the teacher for students to look up at them, as evident in the findings in which the majorship plays as a factor in scoring a below average in critical thinking.

Provide importance in the contribution of culture in changing the perspective on any human facet not fully described by any Western-made theories with regard to critical thinking based in everyday life, much more in education as

a powerful tool and resources for the future of "teachers to be" in their personal and civic life. Educating students to be confidently critical thinkers can yield useful insights into foreseeing the basis of a national and democratic society.

Researchers wishing to use critical thinking in determining differences among students need to consider this with other variables in combination with the faculty, majorship, and sex categories, as proven in this study to yield productive results for other local schools and international settings. Research on this subject matter may attract international audience; since, cognitive development is needed in expanding or expounding across multidiscipline. For further research, origin, geographical, socio-economic status and other variables across disciplines are also considered in a similar study.

Also, it is recommended that other personal qualities or personology variables such as self-concept, self-esteem, self-regard, and the like be used, if the aim is to develop an individual in their future everyday living.

The development of other cognitive functions (e.g. spiritual intelligence, creative thinking, multiple intelligences, brain-based system, taxonomy of learning, objective domains of learning, etc.) is highly recommended, especially in the educational discipline.

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