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## Gauging Senior High School Students' Reflective Thinking Skills

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**Abstract:** Upon the implementation of the K-12 curriculum, varied areas for investigation were opened for researchers, specifically for the Senior High School program. As the technological revolution shapes a new kind of learners, more investigations should be generated in order to fully understand and determine their academic needs. Foremost of the skills that should be developed among the senior high school students is reflective thinking. This study aims to measure the reflective thinking skills of the students during the first year of the senior high school implementation. A descriptive research is conducted to determine the reflective thinking skills of the senior high school students. Using the researcher-developed Reflective Thinking Questionnaire, 341 students were surveyed. Generally, findings of the study showed that the respondents are quite reflective. Moreover, the study revealed significant differences on the reflective thinking skills of the students when they were grouped according to the strand where they are enrolled. Present results underscore the need for teachers to design pedagogies that specifically aim to further develop the reflective thinking skills of the students.

**Key Words:** reflective thinking skills; descriptive research; senior high school; Philippines

### 1. INTRODUCTION

Reflective thinking is defined as “an active, persistent and careful consideration of any belief or supposed form of knowledge in the light of the grounds that supports it and the conclusion to which it tends” (Dewey, 1933, p. 6). In Dewey’s book *How We Think*, he emphasized that reflection involves a consequence of ideas where there is a consecutive ordering of ideas. It is a process that is based on a sequential thought processing grounded from one’s belief and behavior and its association with others.

Among the various areas in basic education, reflective thinking is one of the preferred topic being investigated by educators. (DepED, 2012) claimed that one of skills that students should develop towards critical thinking and problem solving is their reflective thinking skills which facilitate reflective learning.

In recent years, researchers studied reflective thinking vis-a-vis the development of students’ critical thinking (e.g Yuekming & Abd, 2014, Naber, Wyatt, Hall, & States, 2014, Tuncer & Ozeren, 2012). Findings of Turkey (2016) revealed

that reflective skills allow students to be more active and spends more time thinking about their learning. It was also mentioned that learning with reflective thinking skills makes it more effective and lifelong.

Further, Tuncer & Ozeren (2012) suggested that teachers should integrate approaches that will provide for learners’ mental activities like reflective thinking and critical thinking.

This study aims to answer the following research questions:

(1) What are the senior high school students’ perceptions of their reflective thinking skills in terms of :

- (a) self-reflection;
- (b) mastery;
- (c) feedback and
- (d) realization?

(2) Is there a significant difference between the reflective thinking skills of the students when grouped according to their sex and to the strand in which they are enrolled?



2. METHOD

This study utilized a descriptive survey research design to determine the reflective thinking skills of the senior high school students in one of the universities in the country.

Three hundred forty one (341) senior high school students served as respondents of the study. They were composed of 58.2 % female students and 41.8 % male students; of the four major of specialization in the program, 12% of the students were enrolled in the Humanities and Social Sciences strand; 12.3 % on the Technology - Vocational Livelihood strand; 58.1 % on the Science and Technology, Engineering and Mathematics strand; and 17.6 % on the Accountancy, Business and Management strand. The researchers asked the permission of the principal to conduct the survey and a written consent was secured from the respondents who volunteered to participate in the survey.

The Reflective Thinking Skills Questionnaire for Senior High School Students developed by De Leon & Prudente (2017) was used to determine the reflective thinking skills of the student. There were four constructs in this questionnaire namely, self-reflection, mastery, feedback, and realization. The 15-item scales gained a Cronbach's Alpha = 0.759 which means that the instrument is internally consistent.

Means and standard deviation were used to describe the reflective thinking skills of the senior high school students. Whilst to determine the significant difference between the groups, sex and strand or specialization, independent t-test and analysis of variance (ANOVA) were calculated respectively.

3. RESULTS AND DISCUSSION

Table 1 shows the mean and standard deviation of the items under the construct termed as 'self-reflection.' This construct describes what students' think, what they are doing, how they do things, and whether these could be improved further. Among the items, the item "I like to know how I do things," gleaned the highest mean ( $x=3.48$ ,  $SD=0.63$ ) while the item, "I reflect on what I think gained the lowest mean ( $x=3.16$ ,  $SD=0.70$ ). Overall, the respondents were very reflective when

it comes to their self-reflection. Thus, it showed that the respondents think deeper on their actions and how these affect them.

Table 1. Descriptive Statistics on Self-Reflection.

Self-Reflection	Mean	SD
I think of a better way of doing things	3.41	.60
I like to know how I do things	3.48	.63
I think of what I have done so that I can improve on it further	3.40	.67
I reflect on my actions to see whether I could have improved what I did	3.28	.61
I reflect on what I think.	3.16	.70
<b>General Weighted Mean</b>	<b>3.35</b>	<b>.46</b>

Means and standard deviation of the items under the construct termed as 'mastery' is presented (Table 2). This construct is described as doing things without dwelling on deeper thoughts. The respondents showed disagreement on the items 'I do not consider feedbacks of others because I know what I am doing' ( $x=1.97$ ,  $SD=0.86$ ) and 'I can work on things without thinking about what I am doing' ( $x=1.84$ ,  $SD=.86$ ). This means that they consider what others say whenever they do things and they think of what they are doing. Thus as shown generally, respondents are 'quite reflective' on things that they do, thus go through deeper thoughts before they do things.

Table 2. Descriptive Statistics on Mastery.

Mastery	Mean	SD
I do not consider feedbacks of others because I know what I am doing	1.97	.86
I can work on things without thinking about what I am doing	1.84	.86
When I repeatedly do things, I start to do them without thinking about it	2.69	.88
<b>General Weighted Mean</b>	<b>2.96</b>	<b>.49</b>

Table 3 presents the mean and standard deviation of the items under the construct named 'feedback.' This construct describes feedback as integral part of the reflection process, which helps students to understand and improve what they do. The item 'I take feedback into consideration



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because it will help me improve on what I am doing' ( $X= 3.39$ ,  $SD =0.63$ ) and 'I seek feedback from others in order to enhance my tasks' ( $X= 3.26$ ,  $SD =0.68$ ) got the highest mean and lowest mean respectively. Interestingly, it showed a slim mean difference (0.13) between items, thus describing a high agreement in this construct.

Table 3. Descriptive Statistics on Feedback.

Feedback	Mean	SD
I take feedback into consideration because it will help me improve on what I am doing	3.39	.63
I think others' feedback is important as it will help me understand better	3.36	.65
I seek feedback from others in order to enhance my tasks	3.26	.68
I take into consideration my past performance and integrate it with what I am doing	3.33	.67
<b>General Weighted Mean</b>	3.34	.54

Shown in Table 4 is the mean and standard deviation of the items under the construct 'realization.' The three-item construct describes how student make judgment based on their mistakes and what others have said. The item 'I reflect on what others have said gained the highest agreement ( $x= 3.26$ ,  $SD =0.64$ ) in this construct shows that the respondents thought of what other people say and reflect about it. The other two statements, 'I immediately realize my mistakes when I reflect what I have done,' ( $x= 3.22$ ,  $SD = 0.62$ ) and 'I correct my mistakes upon reflection,' ( $x= 3.18$ ,  $SD = 0.67$ ) revealed moderately high agreement that their errors contribute to their reflection.

Table 4. Descriptive Statistics on Realization.

Realization	Mean	SD
I correct my mistakes upon reflection	3.18	.67
I immediately realize my mistakes when I reflect what I have done	3.22	.62
I reflect on what others have said	3.26	.64
<b>General Weighted Mean</b>	3.22	.49

The construct reflective thinking skill of the respondents is summarized in table 5. Among the four (4) constructs, it showed that self-reflection ( $X= 3.35$ ,  $SD= 0.46$ ) and feedback ( $X= 3.34$ ,  $SD= 0.54$ ) got the highest mean, which is described to be 'very reflective.' The respondents are described to be 'quite reflective' under the constructs realization ( $x= 3.22$ ,  $SD = 0.49$ ) and mastery. ( $X= 2.96$ ,  $SD= 0.0.49$ ). Overall, the respondents' reflective thinking skill was rated to be 'quite reflective with the mean score of 3.22 and standard deviation 0.37.

Table 5. Summary Statistics of the Students' Reflective Thinking Skills.

Reflective Thinking Skills	Mean	SD
Self-Reflection	3.35	.46
Mastery	2.96	.49
Feedback	3.34	.54
Realization	3.22	.49
<b>Grand Weighted Mean</b>	3.22	.37

Findings in Table 6 indicated no significant difference on the reflective thinking skills of the respondents and their sex ( $t$ -value= 5.19;  $p$ -value= 0.604). Similar to the findings of Tuncer & Ozeren (2012), significant difference between the sex of the respondents and their reflective thinking skills was not determined. This findings is contrary to the result of Soodmand & Farahani (2015) which claimed that there is a significant difference on reflective thinking when grouped according to their sex. However, reflective thinking skill of the respondents significantly different when grouped according to their specialization ( $F$ -value = 6.737,  $p$ -value= .000). Pos Hoc analysis further determine that only the TVL strand has a significantly difference among the other three specializations. No significant difference between the other three strands was observed.



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Table 6. Difference between the reflective thinking skill of the respondents when grouped according to their sex and strand/specialization.

Students	Reflective Thinking Skill			
	Mean	SD	F-value	p-value
<b>Sex</b>			.519	.604
Male	3.24	.42		
Female	3.22	.34		
Levene=0.179; df: 382				
<b>Specialization</b>			6.737	.000
STEM	3.25	.37		
ABM	3.31	.31		
TVL*	3.00	.45		
HUMMS	3.19	.29		
Levene = 0.234; df: 337				

#### 4. CONCLUSION

Generally, results indicated that most of the senior high school students surveyed were 'quite reflective.' Although no significant difference was determined between sex and their reflective thinking skills, significant difference was noted when students were grouped according to the strand where they are presently enrolled. Notably, it was revealed that among the four strands, only TVL gained significant difference between groups. This finding suggests that teachers should determine ways on how reflective thinking can be developed. The implications drawn from this study must be viewed in the light of the limitation inherent to this research. Future studies can validate further the constructs used in this study by involving more respondents in order to draw a more substantial generalization. Moreover, future

researchers can explore interventions that might affect the development of students' reflective thinking skills.

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#### 6. REFERENCES:

- Dewey, J., (1933). *How we think*, NY: Prometheus Books.
- DepEd. (2012). *K to 12 Curriculum Guide*.
- Naber, J., Wyatt, T. H., Hall, M., & States, U. (2014). Nurse Education Today The effect of reflective writing interventions on the critical thinking skills and dispositions of baccalaureate nursing students. *YNEDT*, 34(1), 67–72. doi:10.1016/j.nedt.2013.04.002
- Soodmand, H., & Farahani, M. (2015). Reflective thinking and reflective teaching among Iranian EFL teachers : Do gender and teaching experience make a difference ? *Procedia - Social and Behavioral Sciences*, 192, 615–620. doi:10.1016/j.sbspro.2015.06.107
- Tuncer, M., & Ozeren, E. (2012). Prospective teachers' evaluations in terms of using reflective thinking skills to solve problems. *Procedia - Social and Behavioral Sciences*, 51, 666–671. doi:10.1016/j.sbspro.2012.08.221
- Turky, M. A. (2016). Promoting reflective thinking skills by using web 2.0 application. *SSRN Electronic Journal*. doi:10.2139/ssrn.2758239
- Yuekming, H., & Abd, L. (2014). Assessing learning outcomes through students' reflective thinking. *Procedia - Social and Behavioral Sciences*, 152, 973–977. doi:10.1016/j.sbspro.2014.09.352