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Assessment Literacy of Secondary School Teachers and Its Impact on Students' Performance in the Division of Gingoog City

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ABSTRACT

This study examined teacher's assessment literacy and its probable impact to students' performance through the intervening variables of the teachers. The study had 234 public secondary school teachers in the Division of Gingoog City. It employed the Input-Process-Output (IPO) Model of David Bushnell which illustrate how teachers' demographics (input): length of service, DepEd issuances and assessment training/s attended, assessment literacy (process): assessment knowledge, assessment practices/beliefs and assessment result utilization will impact students' performance (output).

The results showed that most of the respondents have been in the service for five years and below, a little over half have attended training on test construction and table of specification and on the average only a little more than one-fourth of the teachers received copies of DepEd issuances relative to assessment. Additionally, it revealed that there is no conclusive evidence to show a direct correlation between teachers' assessment literacy and students' performance which means none of the assessment literacy variables have significant impact on students' performance. The results further revealed that there is no significant difference were noted in teachers' length of service and DepEd issuance to assessment literacy. However, a highly significant difference was noted in assessment trainings attended and assessment literacy. It also disclosed that no matter how long the teachers have been in the service, no matter whether they have copies of all DepEd issuances, these do not contribute to their literacy in assessment.

The findings in this study underscored the need to provide for quality and effective inputs from both the department and the respondents. There has to be relevant and appropriate process to effect quality output, which is a commendable students' performance.

Keywords: Assessment Literacy, Students' Performance, Knowledge, Practices, Result Utilization, Length of Service, Assessment Trainings

INTRODUCTION

The implementation of the K to 12 Basic Education curriculum has brought about reforms and innovations in the Department of Education (DepEd). DepEd has come up with curriculum guides and their corresponding competencies to equip the learners with twenty-first century skills which they need to become productive and useful citizens of the country. There have been innovations introduced not only in the curriculum, but also in teaching-learning process. Teaching techniques and strategies now favor the interactive classroom with the student as the center or focus in the classroom. As the saying goes, the teacher has become the facilitator and no longer the sage on the stage, but merely the guide on the side.

Those new teaching-learning strategies naturally call for new ways of assessing student learning outcome. One of the most critical responsibilities of a classroom teacher is assessment of student performance because to a great extent it influences everything that teachers perform in class. Also, the quality of applied assessment is closely associated with the quality of teaching in the classroom. Thus, adequate level of teachers' assessment literacy in necessary in order to evaluate learners appropriately and fairly. Hence, it is essential for teachers to possess assessment literacy because it helps teachers perceive, analyse and use data on student performance to improve teaching-learning process. Under the K to 12 program, assessment has been highlighted as integral to teaching and learning process towards attaining the twenty-first century skills.

Recognizing the vital role of assessment, the DepEd issued DepEd Order No. 8, s. 2015, Policy Guidelines on Classroom Assessment for the K to 12 Basic Education Curriculum. The Department Order "seeks to develop classroom teachers' assessment literacy by giving them clearer understanding on the **what, why** and **how** to assess students' learning progress with utmost authenticity". With the issuance of DepEd Order No. 8, s. 2015, teachers are expected to be assessment literate; however, in spite of the issuance and trainings conducted, assessment of student outcomes still remains an issue among classroom teachers.

One of the issues that the Division of Gingoog City has encountered relative to assessment literacy is teachers' knowledge on test construction. The researcher, who has been designated in DepEd – Gingoog City Division as Division Testing Coordinator (DTC) for three years and recently appointed as Senior Education Program Specialist in Monitoring and Evaluation, found out that there are challenges for teachers on test construction during periodical exams since the Division has its unified, division-wide administration of periodical exams. During the monitoring and feedback-giving during and after every grading period, observations about the test papers produced by the Division Office have earned a lot of comments from the district supervisors and teachers from the field.

With the local and national issues on assessment literacy skills of teachers, the researcher was encouraged to conduct a study on assessment literacy: assessment knowledge, assessment practices/beliefs and assessment result utilization of secondary school teachers and its impact on the students' performance in the Division of Gingoog City. To the knowledge of the researcher, no study has been conducted on assessment literacy in the Division of Gingoog City. This study therefore seeks to address a research gap on this topic. Thus, the conceptualization of this study.

This study is anchored on the Input-Process-Output (IPO) model of David Bushnell (1990). The model is used in understanding how inputs and process affect outputs, how teachers' demographics, assessment literacy: assessment knowledge, assessment practices/beliefs and assessment result utilization will impact students' performance. Based on Bushnell's IPO Model, the inputs are fed into the process stage. After the delivery of processes, the end results are produced. These results are the outputs or the benefits derived from the process. In Albert Bandura's Social Cognition theory, a person's belief and own perception in his or her capability to do a particular task can be an indicator of how he or she regulates the behaviour related to a certain task. In light of Bandura's social cognitive theory, social persuasion and influence will affect one's beliefs and behavior and in his or her ability to execute a course of action. As such, the findings of the present study imply that internal and external social reinforcement are necessary as such, teachers might need encouragement and verbal support from supervisors, school administrators, and other teachers, that they are capable of analyzing results of classroom assessment (Alkharusi, 2011). In addition, Zhang & Burry-Stock (2003) found out in their study additional teachers' assessment practices and self-perceived assessment skills across teaching levels and content areas. In their study, it was found out that as grade

increases, teachers rely more on objective tests in classroom assessment and show an increased concern for assessment quality. In terms of content areas, teachers' involvement in assessment activities reflects the nature and importance of the subjects they teach.

METHODOLOGY

To ascertain the assessment literacy of secondary school teachers and its impact on students' performance in the Division of Gingoog City, a descriptive research method was used. The research was conducted in the (16) sixteen public secondary schools in the Division of Gingoog City. The simple random sampling yielded a total of 234 respondents out of 394. These 234 respondents were permanently hired by DepEd and have been trained in the K to 12 Mass Training of Teachers.

For the past years, the Division of Gingoog City has been faced with the challenge of improving its performance in the National Achievement Test (NAT). Despite the presence of different programs and interventions, still the NAT MPS has remained low, with the MPS not reaching 75 percent, which is the minimum proficiency level.

RESULTS AND DISCUSSION

Assessment on the Profile of the Secondary Teachers

A teacher's profile—which includes their experience, qualifications, and teaching style—has a direct impact on their performance. Well-rounded profiles with strong credentials and adaptable methods frequently increase engagement and effectiveness, whereas mismatches between profile and student needs can impede learning outcomes.

Length of Service. Table 1.1 above shows the length of service of the teachers. Most (45.73%) of the respondents belong to the 0-5 years group. They are still considered new to the service. They are followed by the 6-10 year group, 25.21 percent; 11-15 years, 17.09 percent; and 16 years and above, 11.97 percent. One can therefore, say that a great majority of the teachers have been in the service for ten years and below.

Table 1.1. Distribution of Respondents by Length of Service (n=234)

Length of Service	Number of Respondents	Percentage
16 & Above	28	11.97
11-15 Years	40	17.09
6-10 Years	59	25.21
0-5 Years	107	45.73
TOTAL	234	100.00

Assessment Training/s Attended. Table 1.2 shows that over half of respondents have not attended assessment trainings in six topics: Item Analysis, Test Construction and TOS Formulation, Administering and Scoring Tests, Interpreting and Communicating Assessment Result, Meeting Ethical Standards in Assessment, and Developing Assessment Methods. Test Construction and TOS Formulation had the highest attendance (55.13%), while Interpreting and Communicating Assessment Results training (73.08%) was not attended due to non-involvement of teachers in these activities.

Table 1.2. Distribution of Respondents by Assessment Training/s Attended (n=234)

Training	Have Attended	Percentage	Have Not Attended	Percentage
Item Analysis	104	44.44	130	55.56
Test Construction TOS Formulation	129	55.13	105	44.87
Administering and Scoring Tests	74	31.62	160	68.38
Interpreting and Communicating Assessment Results	63	26.92	171	73.08
Meeting Ethical Standards in Assessment	69	29.49	165	70.51
Developing Assessment Methods	79	33.76	155	66.24

DepEd Issuances – Memoranda/Orders. Table 1.3 reveals that 63.46% of respondents have received the two DepEd issuances, D.O. No. 8, s. 2015 and D.O. No. 55, s. 2016, which focus on classroom assessment and national assessment of student learning. However, 33.76% have not received these issuances, which emphasize the role of teachers in implementing curriculum standards and measuring learners' progress. Distribution of these issuances is usually through orientation during the Start of the Year Conference, but not all teachers have internet access or attend seminars. Teachers are responsible for accessing and applying the policies and guidelines.

Table 1.3. Distribution of Respondents by DepEd Issuances Delivered to the Respondents (n=234)

D.O. No.8, s. 2015				D.O. No. 55, 2016				Average Percentage	
Have Received	%	Have Not Received	%	Have Received	%	Have Not Received	%	Have Received	Have Not Received
155	66.24	79	33.76	142	60.68	92	39.32	63.46	36.54

Assessment on Literacy

Teacher literacy assessment evaluates educators' reading, writing, and comprehension skills, crucial for effective instruction and modeling literacy to students.

Knowledge. Table 2.1 shows that the teachers obtained an overall mean of 9.94 described as **moderate.** The standard deviation of 2.56 means that their responses are spread far from the mean. For a twenty-item test, more than half (56.84%) got scores between 9-12; 28.21 percent, obtained scores between 5 and 8; 13.25 percent, scores between 13 and 16. Only two respondents were able to score between 17 and 20. Still there were two teachers who scored from 4 and below. The items were examined closely and it was found out that most of the teacher-respondents committed mistakes in answering questions under given scenario/ situations they were asked as to which assessment principles were to be applied in the situations given. Also, majority of the respondents interchangeably defined validity and reliability.

Table 2.1. Distribution of Respondents' Ratings on Assessment Knowledge(n=234)

KNOWLEDGE			
Ratings	Description	Number of Respondents	Percentage
17-20	Very High	2	0.85
13-16	High	31	13.25
9-12	Moderate	133	56.84
5-8	Low	66	28.21
4-below	Very Low	2	0.85
TOTAL		234	100
	Mean	**:**	**9.94**
	Description	**:**	**Moderate**
	Standard Deviation	**:**	**2.56**

Practices. Table 2.2 shows that the overall mean rating given by the teachers is 3.41 described as **skilled**. The standard deviation of 0.62 indicates that there is a minimal variation of their response. Skilled means teachers have enough and sufficient skills in demonstrating and applying assessment practices as presented in the inventory.

Table 2.2. Distribution of Respondents' Self-Ratings on Assessment Practices (n-234)

PRACTICES			
Ratings	Description	Number of Respondents	Percentage
4.21-5.00	Very Skilled	12	5.13
3.41-4.20	Skilled	108	46.15
2.61-3.40	Somewhat skilled	99	42.31
1.81-2.60	A little skilled	12	5.13
1.00-1.80	Not at all skilled	3	1.28
TOTAL		234	100.00
	Mean	**:**	**3.41**
	Description	**:**	**Skilled**
	Standard Deviation	**:**	**0.62**

Result Utilization. Table 2.3 presents the distribution of respondents' rating on assessment result utilization. The teachers obtained an overall mean of 3.43 described as **utilized.** The standard deviation of 0.71 indicates that the answers are clustered near the mean. Table 2.3 shows that most (47.44%) of the teacher-respondents **utilized** the assessment results; 39.74 percent, **utilized occasionally;** 6.84 percent, **highly utilized;** 3.85 percent, **seldom utilized;** and 2.14 percent, **not at all utilized.** With the utilization of assessment results, teachers will be able to check if their instructional approaches, methods, strategies and techniques meet students' learning needs. Using this as a basis, teachers can adopt better alternative

ways that can improve their teaching activities and effect learning (Stiggins, Arter, Chappuis, & Chappuis, 2006).

Table 2.3. Distribution of Respondents' Ratings on Assessment Result Utilization (n=234)

ASSESSMENT RESULT UTILIZATION			
Ratings	Description	Number of Respondents	Percentage
4.21-5.00	Highly Utilized	16	6.84
3.41-4.20	Utilized	111	47.44
2.61-3.40	Utilized Occasionally	93	39.74
1.81-2.60	Seldom Utilized	9	3.85
1.00-1.80	Not at all Utilized	5	2.14
TOTAL		234	100.00
	Mean	**:**	**3.43**
	Description	**:**	**Utilized**
	Standard Deviation	**:**	**0.71**

Assessment on the Level of Students' Performance

Students' performance is equated with the school performance measured from the consolidated Mean Percentage Score (MPS) result across eight (8) learning areas of the students from Grades 7 to 10 per school for the school year 2016-2017.

The average Mastery Percentage Score (MPS) of sixteen public secondary schools is 55.12 percent, below the national proficiency level of 75 percent. Achieving mastery requires self-discipline, focus, and daily learning. The lowest MPS is 37.04% at Kalipay National High School, while the highest is 68.34% at San Luis National High School. Both schools do not meet the national standard proficiency level of 75 percent. The Division of Gingoog City faces challenges in increasing NAT MPS and quarterly exam MPS due to factors like teacher mismatch, contact time, competency coverage, and classroom assessment methods.

Table 3. Distribution of Students' Performance by their School Mean Percentage Score (MPS) Across Eight Learning Areas from Grades 7 to 10

School Name	MPS	Description
Bal-ason NHS	55.31%	Average Mastery
Eureka National High School	60.39%	Average Mastery
Gingoog City CNHS	52.33%	Average Mastery
Anakan NHS	47.24%	Average Mastery
BACKKISMI NHS	56.74%	Average Mastery
LURISA NHS	62.79%	Average Mastery
PUNDASAN NHS	49.56%	Average Mastery
Jacinto D. Malimas Sr. NHS	64.50%	Average Mastery
Kalipay NHS	37.04%	Average Mastery
Kisandi NHS	64.57%	Average Mastery
Lunao NHS	44.44%	Average Mastery

Malibud NHS	51.42%	Average Mastery
Malinao NHS	48.22%	Average Mastery
Mimbunga NHS	54.50%	Average Mastery
Talisay NHS	64.51%	Average Mastery
San Luis NHS	68.34%	Moving Towards Mastery
AVERAGE	**55.12%**	**Average Mastery**

A Significant Difference in the Respondents' Assessment Literacy

T-test and F-test being parametric tests assume normality of data. So, prior to conducting difference of means, the assumption to normality was tested for length of service, assessment training/s attended and DepEd Issuances. The ratio of skewness to its standard error can be used as a test of normality. The acceptable values of skewness lie between±2. In this study, none of the aforementioned variables satisfy the assumption of skewness. DepEd Issuances was associated with skewness equal to 3.48, Length of Service is highly skewed at 8.40 and Assessment Training/s Attended at 3.73. Furthermore, the histograms below portray non-normal distribution of the data of all three variables.

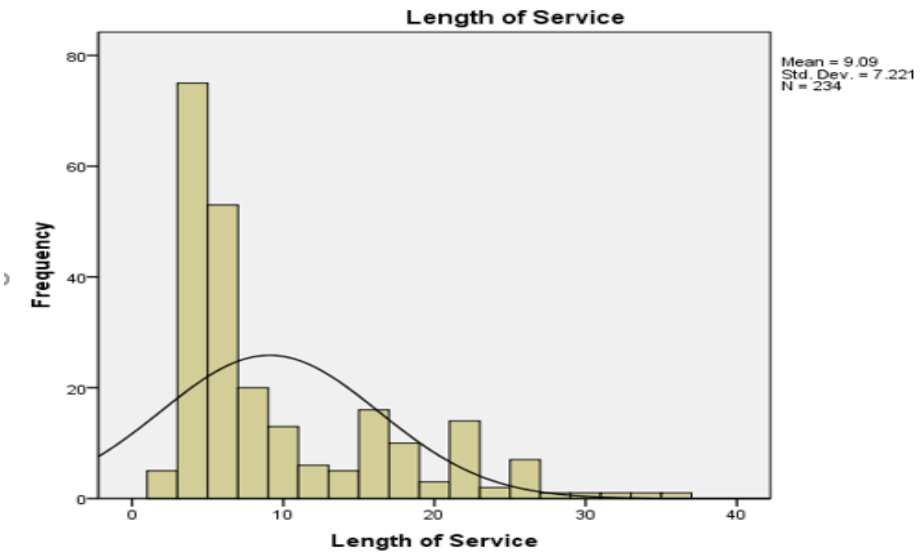

Figure 2. Distribution of Length of Service

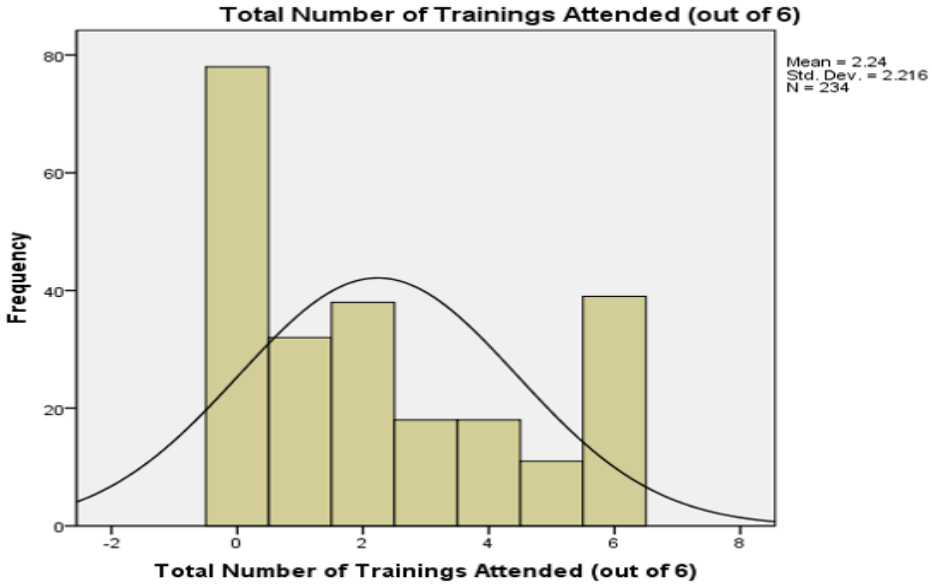

Figure 3. Distribution of Training/s Attended

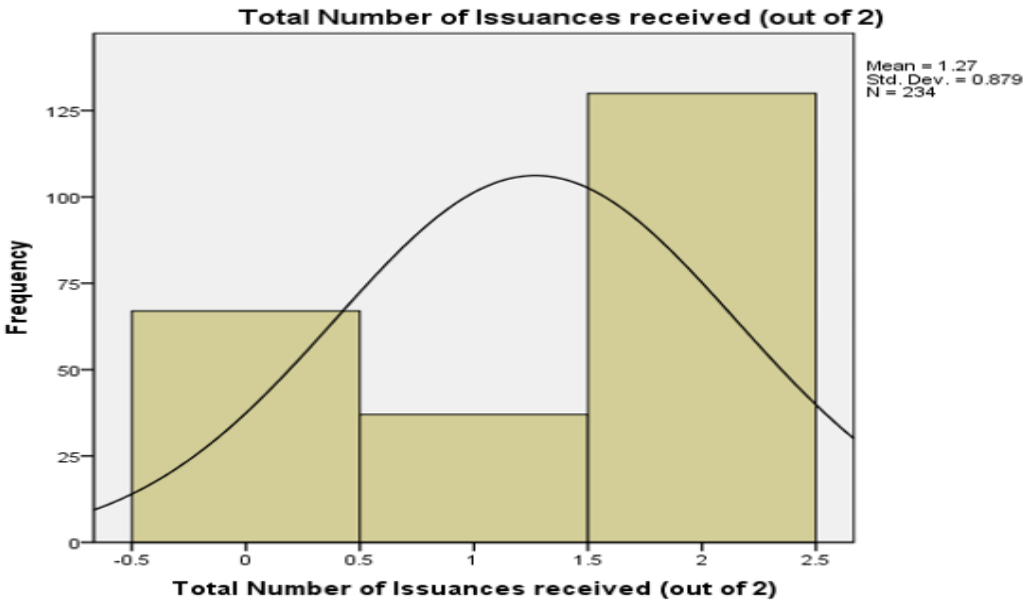

Figure 4. Distribution of DepEd Issuances

Length of Service

Table 4.1 presents the test of significant difference.

Through Kruskal Wallis test, the data do not provide enough evidence to conclude that there is a significant difference in the Assessment Literacy of teachers when grouped according to length of service. Thus, the null hypothesis is not rejected. The length of service in teaching, does not guarantee higher teacher assessment literacy. In fact, teachers in the younger range obviously have earned their qualification and bachelor's degree under the new Teacher Education curriculum which gives more exposures on student assessment. The educational institutions they went to college integrated assessment in some of the professional subjects, thus making young graduates more familiar with assessment.

Table 4.1. Distribution of Test Statistic in the Respondents Level of Assessment Literacy When Grouped According to Their Length of Service

	0 to 5 years n= 108		6 to 10 years n=58		11 to 15 years n=23		16 years and above n=45		Kruskal Wallis Chi-Square(df)
	mean	desc	mean	desc	mean	desc	mean	desc	
Assessment Literacy	3.31	Somewhat Skilled	3.12	Somewhat Skilled	3.23	Somewhat Skilled	3.17	Somewhat Skilled	5.261(3) ns Alpha = .154

In the study of Zhang, Z., & Burry-Stock, J. (2003), high experienced teachers when compared with those low teaching experience had a higher level of educational assessment knowledge. Hence, when it comes to experience, highly experienced teachers compared to those having low teaching experience had a higher level of educational assessment knowledge. However, in this study it was found that the number of years in the service will not guarantee higher assessment literacy. Thus, the number of years does not tell that one is more assessment literate than the others.

Assessment Training/s Attended

Table 4.2 shows the test on significant difference of assessment. The Kruskal Wallis test reveals a significant difference in assessment literacy among teachers based on the number of trainings attended. Teachers with 4-6 trainings have higher assessment literacy than those with fewer. However, in our department, assessment trainings are limited and insufficient. Teachers are responsible for evaluating instruction and student learning, but inadequate training has led to inadequate preparation for classroom assessment. Hailaya (2014) and Popham (2006) highlight the need for continuous and updated in-service training in classroom assessment to boost teachers' confidence in performing assessment-related tasks.

Table 4.2. Distribution of Test Statistics in the Respondents Level of Assessment Literacy When Grouped According to Their Assessment Trainings Attended

	None n = 78		1 – 3 trainings n = 88		4 – 6 trainings n = 68		Kruskal Wallis Chi-Square(df)
	mean	desc	mean	desc	Mean	desc	
Assessment Literacy	3.125	Somewhat Skilled	3.16	Somewhat skilled	3.43	Skilled	20.021(2)** Alpha = .000

Assessment on DepEd Issuances/ Memos & Orders

Table 4.3 presents the test of significant difference of DepEd Issuance to assessment. Through Kruskal Wallis test, the data do not show evidence that there is a significant difference in the Assessment Literacy of the teachers when grouped according to number of DepEd issuances received, $x^2 (2) = 4.865\ p>.05$. Thus, the null hypothesis is not rejected. This means that regardless of the number of DepEd Issuances on assessment released their assessment literacy level does not vary. Thus, DepEd must conduct massive

training on assessment and orientation on the DepEd Issuances on assessment and on other curriculum areas to all basic education teachers to prepare and equip them with assessment implementations.

According to Ballad (2013) most DepEd Orders pertaining to classroom/student assessment lack the necessary details to guide teachers in the assessment implementation. Because of this, teachers tend to implement assessment according to their own interpretations.

Table 4.3. Distribution of Test Statistics in the Respondents Level of Assessment Literacy When Grouped According to DepEd Issuances Received

	None n=67		One n=37		Two n=130		Kruskal Wallis Chi-Square(df)
	mean	desc	mean	desc	mean	desc	
Assessment Literacy	3.15	Some what Skilled	3.16	Some what Skilled	3.28	Some what Skilled	4.865 (2) ns

Assessment of Literacy on Students' Performance

Prior to running a regression analysis, the independent variables were tested for multicollinearity which is an assumption for regression analysis. The table shows that none of the variables are linearly related to each other.Table 5.1. shows the final multiple linear regression model which is not significant (F=1.36, alpha >.25). Moreover, none of the independent variables (Knowledge, Practices and Result Utilization) have significant impact on students' performance. Although, among the three independent variables, Knowledge is almost significant at alpha = .07.

The R2 of 0.017 denotes that 1.7% only of the total variance in the student performance can be explained by the teacher's assessment literacy level. Overall, the F value of 1.36 shows no significant difference hence the null hypothesis is rejected as it shows the low level of assessment literacy does not affect the student's performance in the case of this study.

However, there are researches and literatures that affirm on teacher's assessment literacy affect students' performance.

One of the most critical responsibilities of a classroom teacher is assessment of student performance because to a great extent it influences everything that teachers do (Mertler, 2009). Also, the quality of applied assessment is closely associated with the quality of teaching in the classroom. Hence, it is not true that "if an educator is good in teaching a language, he or she is good in assessing the learners as well" (Spolsky, 1978, cited in Jafarpour, 2003). Thus, in order to evaluate and measure learners' performance appropriately, it is necessary for teachers to have an adequate and enough educational assessment principles and level of assessment literacy (Popham, 2006).

At the heart of this assessment framework is the recognition and deliberate consideration of the learner's zone of proximal development (Vygotsky 1978). Appropriate assessment is committed to ensure dependent learners to independent learners where their success is moving from guided to independent display of knowledge, understanding, and skills, to enable them to transfer this successfully in future situations. From this point of view, assessment facilitates the development of learners' higher-order thinking and twenty-first century skills.

	Knowledge	*Practices*	*Result Utilization*
Knowledge	1		
Practices/Beliefs	0.226196437	1	
Result Utilization	0.188932396	0.476546958	1

Teachers' attributes are expected to influence student outcomes in any educational context. It is generally assumed that teacher-related factors affect students in the classroom (Maligalig, et al., 2008; Campbell, et al., 2004). Hence, teachers' assessment literacy through the intervening variables at the teacher and student levels can possibly impact on academic achievement and aptitude. However, no research concerning the direct relationship between teachers' assessment literacy and student performance has been found in the literature.

In this study, there are several factors to consider that would explain why assessment literacy did not affect student's performance because of some considerations

First, results on the assessment practices and assessment results utilization are self-reports or self-rating, hence, no data were gathered to validate whether the self-ratings were consistent with the actual practice in the real classroom scenario. Additionally, since self-rating through a survey required participant motivation, there was potential for a biased sample (Mitchell & Jolley, 2007) with only those with greatest interest responding.

Secondly, the respondents by nature are multi-faceted in their assessment practices and assessment results utilization. In a self-administered rating there is no opportunity to ask for clarification or conduct further exploration of a response, leaving some responses either inaccurate due to misunderstanding or the survey item's failure to elicit an accurate response.

Lastly, the mechanics or manner on how the school MPS was reported online by the school or school IT Coordinator, there is a challenge on reliability due to the honest reporting of data.

Table 5.1. Multiple Linear Regression Analysis on the Extent that the Independent Variables Explain Students' Performance

Independent Variables	**Regression Coefficients**	**T Value**
x_1: Knowledge	-0.53	-1.80 (alpha = .07ns)
x_2: Practices and Beliefs	1.40	1.04 (alpha = .30ns)
x_3: Result Utilization	-0.48	-0.38 (alpha = .70ns)
Constant: 55.64		
R^2: 0.017 F value: 1.36 (alpha = .25ns) **MODEL (ns):** $\hat{y} = 55.64 + 1.40x_2$		

CONCLUSION

IPO Model as used in the study was a very effective tool in describing and identifying the areas of the programs and policies that need enhancement and revisiting. The model as used in the study allowed the researcher to examine significant relationships among variables and identified areas of strengths and those that need to be improved.

The study revealed that trainings in assessment-related topics contributed the most in the assessment literacy of teachers. It also disclosed that no matter how long the teachers have been in the service, no matter whether they have copies of all DepEd issuances, these do not contribute to their literacy in assessment. There is no substitute, therefore, for seminars and workshops conducted on assessment for the teachers to be honed in their assessment skills. Ideally, in these seminars and workshops, teachers are made to prepare test questions, target to solve for validity and reliability, as well as taught how to prepare the table of specifications. However, these assessment trainings are usually a "one-shot" deal, no monitoring and evaluation of the assessment policies and guidelines implementation.

The study underscored the need to provide for quality and effective inputs from both the department and the respondents. There has to be partnership between the department and the stakeholders. There has to be relevant and appropriate process to effect quality output, which is a commendable students' performance. The Department of Education demands for effective and standard classroom assessment, yet it needs to provide what is necessary in order to attain satisfying results. Furthermore, there has to be a match between assessment training and the assessment policies and guidelines.

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