

# Mother-Tongue Based Multilingual Education Certificate Program vis- a- vis Pupils' Academic Performance in Public Elementary Schools in Cebu

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## **Abstract**

*This study investigates the effectiveness of the Mother Tongue- Based Multilingual Education (MTB-MLE) Certificate Program to the academic achievement of pupils utilizing their first language in learning. Teacher-scholars' performance was measured in terms of teaching-learning and teaching facilitation. Moreover, pupils' satisfaction levels were determined based on the comparison of teachers' performance as scholars, trained and non-trained. The findings of this study revealed that teacher-scholars who enrolled in the certificate program showed positive and direct effect to pupils' academic achievement. An increase of pupils' achievement and satisfaction level towards learning using MTB-MLE as a medium of instruction was grounded on the intensity of teachers' training about the implementation of MTB-MLE in each grade level. Furthermore, scrutinizing the differences of both teachers' performances and pupils' performances in Grades 1 to 3 were helpful in determining more provisions to make the K to 12 implementation more effective and more understandable to individuals within the cycle of learning.*

*Keywords: mother-tongue based multilingual education, academic achievement, public schools, K to 12t*

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## **1.0 Introduction**

Mother Tongue-based Multilingual Education (MTB-MLE) is an education that begins with what the pupils already know (UNESCO, 2010). It developed pupils foundation of their hearing, reading, writing and other concepts in their first language so that they can bridge successfully and with full confidence, the acquisition of school academic terms in second language or even in other languages that pupils are exposed to. With Mother Tongue-based Multilingual Education (MTB- MLE), children are able to build a strong foundation and a good bridge which support their successful learning in school (Malone, 2012). Children begin to build important concepts at an

early age and successfully ripened these in school where their own knowledge and experiences are tapped. Enclosure to DepEd Order No. 32 series 2012 otherwise known as the Implementing Rules and Regulations of Republic Act No. 10157 otherwise known as the Kindergarten Education Act, the local languages or mother- tongue of the children must be utilized in the kindergarten classrooms in the Philippines which had already been implemented in a larger scale. In addition, DepEd Order No. 31 series of 2012 also specifies that mother- tongue must be used as a medium of instruction for all subjects except English and Filipino from Grades one to three.

Even for so long however, when the advancement of Philippine education had been worked out in the larger scale, the results of pupils' achievement was still below the international standards. For instance, according to Martin, et al. in 2008 of the Trends in International Mathematics and Science Study (TIMSS), Philippines still ranked very low in Science and Mathematics. The study therefore sought to investigate the effectiveness of the certificate program in terms of how it was transferred to the pupils in the classroom developing their cognitive abilities and interests. The success of a training program is measured on how certain learning, ideas, concepts and skills are being transferred from one person to the other. As cited by Swinney (2008), transfer of learning refers to that almost magical link between classroom performance and something which is supposed to happen in the real world. Mathewson (1994) stated that if the concepts and principles given in the training program had a significant level of effectiveness to pupils' examination scores using the language that they are exposed to yield an effective language program implementation.

However, most of the researches were focused on the international scale in terms of how MTB-MLE increased the academic achievement of children (Worldbank, 2005) through experimental outputs designed to measure if the learners had achieved the significant skills. Also, no study had ever conducted yet that will determine the appropriateness of the Cebuano teachers' trainings in terms of implementing the MTB-MLE programs in the locality. The researchers sought to orchestrate whether the MTB-MLE certificate program had effectively develop pupils' academic achievement in the classrooms. As Dep Ed Order No. 16 series of 2012 mentions, one of the objectives of MTB-MLE

is to develop pupils' cognitive development by mastering the competencies expected of them in specific learning areas.

Hence, this study aims to determine the effect of MTB-MLE Certificate Program Implementation to the academic achievement of pupils in Cebu. Also, it further aims to assess the teachers' ability to facilitate in the teaching-learning processes utilizing the first language that the pupils are more exposed to.

## 2.0. Theoretical and Conceptual Framework

The study revolves around several theories such as the Schema Theory, Metacognitive Strategies, Cognitive Development Theory and the Threshold Theory which concerned on developing pupils' learning through schemas which are the basic foundation of knowledge. Individuals have the abilities to process different sources of information acquired in the environment and will certainly create meaning to their learning (Davis, 1991). They too can have the ability to reflect and create emotions out from the learning that they get, using the first language or the mother-tongue that they are exposed to.

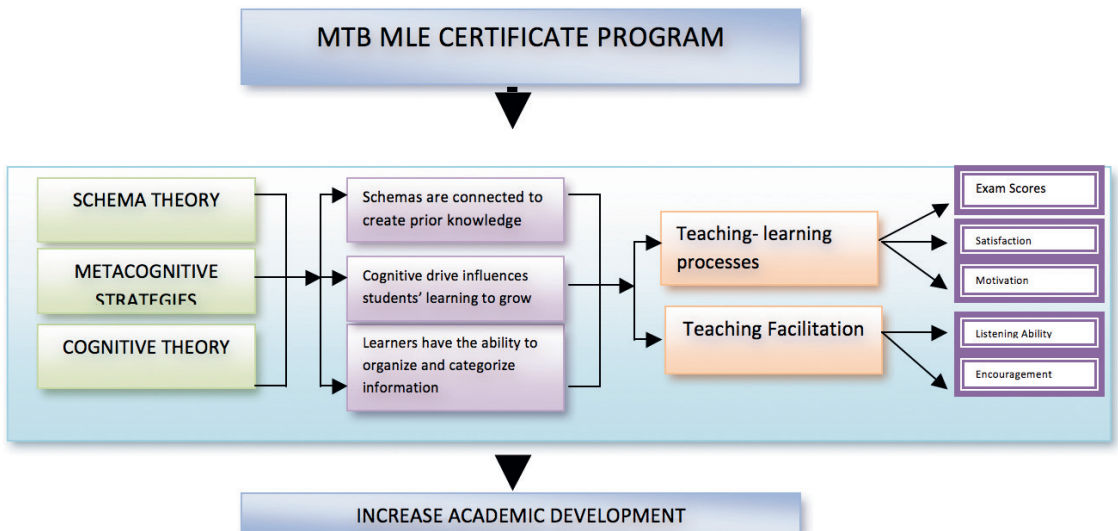
The theories furthermore believe in several components. Firstly, ***schemas are connected to create prior knowledge*** (Novak & Hanesian, 1978). When the schemas are linked together, an individual can successfully understand the world around him and can also process new information and linked it to other various sources too. Second, ***cognitive drive influences an individual's schema to grow***. When he has the drive to learn new things, then he can widen his ability to connect learning as well as creating meaningful insights and reflections out from it. Hence, when an individual can now find meaning to his learning, he can ***now***

**organize and categorize these into structures and place these into its designated location.** Thus, an individual has the capability to create information when schemas or his basic knowledge foundation is tapped. He can easily understand concepts and linked it successfully over the others when his understanding is fully developed and nurtured using the language that he is exposed to.

The Certificate Program in MTB- MLE has the responsibility of training teachers on how to utilize the pupils' schema in developing their academic interest in the classrooms. These are reflected in the following variables: **(A) Teaching Learning Processes** which can be measured through the following factors: exam scores,

enjoyment and motivation. These factors will be measured based on how the pupils have fully grasped the different competencies in curriculum and to what extent are they motivated to engage themselves in fully understanding it to their own cognitive processes making them to enjoy, and **(B) Teacher- Scholars' Ability to facilitate** given the following factors such as: listening and teachers ability to encourage pupils' to create outcomes-based outputs. These are seen based on how the pupils have created several outputs based on the defined competencies as a result of the teachers' ability to listen and collaborate with them in the process of learning. The relationships of these factors will determine how effective is the MTB

Figure 1. Conceptual Framework



### 3.0 Methodology

#### *Participants and Design*

This study made use of a qualitative and quantitative research design. It is qualitative because it investigated the quality of relationships between teachers' level of performance in the certificate program and the academic achievement of pupils. It is quantitative because it described the impact and effects of teachers' level of performance and pupils' academic achievement in terms of numbers, charts and tables to display the findings to be generalized beyond sample to a wider space. A multi-stage sampling technique was utilized in this study in choosing the appropriate respondents for the monitoring and evaluation of the implemented program. There was a combination of several sampling techniques in determining the respondents of each division to adequately determine an equal representation of each division. The teacher respondents were clustered according to school divisions and categorized as: teacher-scholars, trained-teachers, and non-trained teachers.

The teacher respondents of this study were randomly selected in six divisions in Cebu namely: (1) Carcar City Division, (2) Cebu City Division, (3) Cebu Province, (4) Mandaue City Division, (5) Talisay City Division, and (6) Toledo City Division. Seventy-nine (79) selected public school teachers in Cebu teaching Grades 1 to 3 were recognized as teacher-scholars who were highly selected by the Committee composed of the representatives coming from Ramon Aboitiz Foundation Inc (RAFI), Department of Education Region 7 and University of San Jose-Recoletos. A total of forty-eight (48) trained-teachers were selected in six divisions

with at least two trained-teachers of each division depending on their teachers' population. Moreover, twelve (12) non-trained teachers were identified in the study. The total number of pupil-respondents selected in this study was 150 pupils, 25 pupils per class of two teacher-scholars, trained teachers and non-trained teachers. The respondents were clustered based on the phases of the program implementation.

#### *Measures and Procedures*

The certificate program of Mother Tongue-Based Multilingual Education (MTB-MLE) in the University of San Jose-Recoletos started on February 2013. The certificate program is a 12-unit coursework focusing on the subjects such as: Current Trends in Early Childhood Education, Preparation, Selection and Utilization of Instructional Materials, Music, Arts, Physical Education and Health in Early Childhood Education and Assessment of Student Learning.

The three instruments utilized by the researchers in this study were Teachers' Performance Evaluation Tool, Satisfaction Level Questionnaire, and Sinugbuanong Binisaya Achievement Test. The sets of tools were researcher-made questionnaires which were validated through a dry-run in a group of teachers and pupils not in the scope identified. The reliability index of the tool was computed using Cronbach alpha. Hence, the tools were valid and reliable with indexes of 0.86, 0.78 and 0.84 respectively. The first instrument measured three elements of teachers' performance in terms of Content, Classroom Procedures, Routines and Management and lastly Teacher-Student Interaction. Pupils' Satisfaction Level was divided only into two components: Instruction and Facilitation. And lastly, the Achievement test which

had 45 items and was constructed based on the set competencies found in the MTB-MLE curriculum.

A monitoring team was formed to conduct actual assessment with the pupil respondents and observation with the teacher respondents. Retrieved data were tallied and analyzed. Using percentage, the researchers determined the frequency of respondents per division. A weighted mean was computed to determine the level of teachers' performance and pupils' satisfaction level. Moreover, to determine the difference of teachers and pupils performances, a post-hoc analysis using Tukey Test for all pairwise comparisons were used by the researchers. To identify the significant relationship of the variables (teachers' performance and academic achievement) presented in this study, a correlation coefficient must be computed and a scatterplot was presented. In addition, analysis of variance was also utilized to find the significant differences of all the variables in this study.

### **Hypotheses**

With the implementation of the certificate program, its effectiveness and impact to the academic achievement of pupils must be thoroughly determined for generalizations. The teacher scholars were trained and attended classes within the 10-month period with two months extension to conduct school and division- based training among their colleagues in each designated division. The school and division- based training aims to intensify the teaching skills of grades 1 to 3 public school teachers within Cebu in terms of Sinugbuanong Binisaya. At the same time, after the training of the public school teachers, pupils' academic achievement will also be assessed to find out the relevance of the training to the pupils'

school achievement. Hence, it was posited that there was a difference between performances of teachers who underwent training in MTB-MLE and those who did not join and were not trained. Furthermore, with the trainings of teachers, pupils' performances vary based on the way lessons were delivered by the teacher. Through these, it was then projected that these will take many differences between performances of both the teachers (trained or untrained) and the pupils. As such, the researchers came up with the following hypotheses that:

H<sub>1</sub>: There is no significant difference between the performances of teacher- scholars, trained-teachers, and non-trained teachers.

H<sub>2</sub>: There is no significant difference between pupils' academic performance under teacher-scholars, trained-teachers, and non-trained teachers

H<sub>3</sub>: There is no significant correlation between teachers' performances (teacher-scholars, trained-teachers and non-trained teachers) and the academic performance of pupils.

### **4.0 Results and Discussions**

An introductory step in assessing the effectiveness of the program was to have an actual evaluation and observation of all teacher respondents' in their classes. Then, the teachers' performance evaluation tool was administered. The evaluation processes were through self-evaluation, principal's evaluation, peer's evaluation and USJ-R Evaluation Team.

The results were summarized in the figure 2 on the next page.

Figure 2: Summary of Teachers' Performance

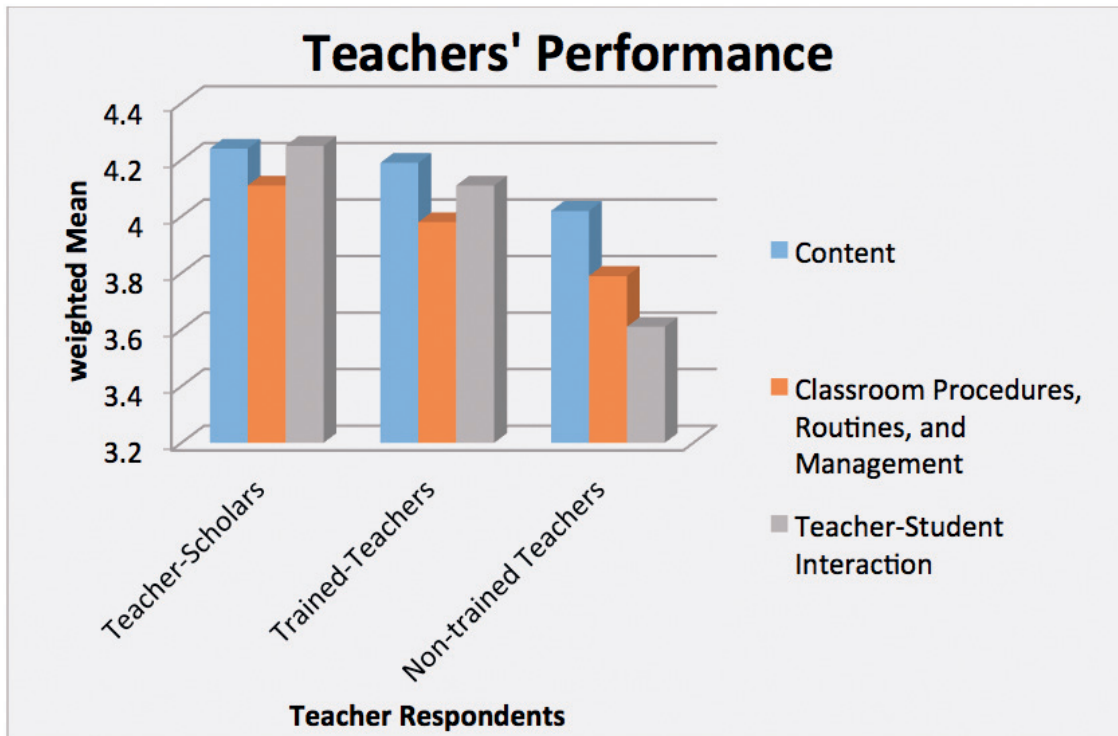


Figure 2 presents the performance summary of the teacher-scholars, trained-teachers and non-trained teachers in the MTB- MLE Certificate Program. The result clearly reveals that teacher-scholars' ability in the content delivery, classroom management and procedures and student-interaction is very high compared to the other respondents identified in the study. Furthermore, the data also revealed that the trained-teachers in the school-based training had higher performance rating than the non-trained teachers. This implies that the Certificate program of MTB- MLE for teacher-scholars strengthened the transfer of

learning to other teachers in their respective localities. It can also lead to creating a ripple change to the other teachers even in the remote areas when cascaded meaningfully. Moreover, the direct interaction from the instructors and key persons to the teacher-scholars in the training program can provide better teaching performance results than the participants doing the echo-training workshops and to those who did not join any trainings at all even if there is no greater disparity seen in the overall performance results. Furthermore, to test the normality of the teachers' performance, normality test were shown below.

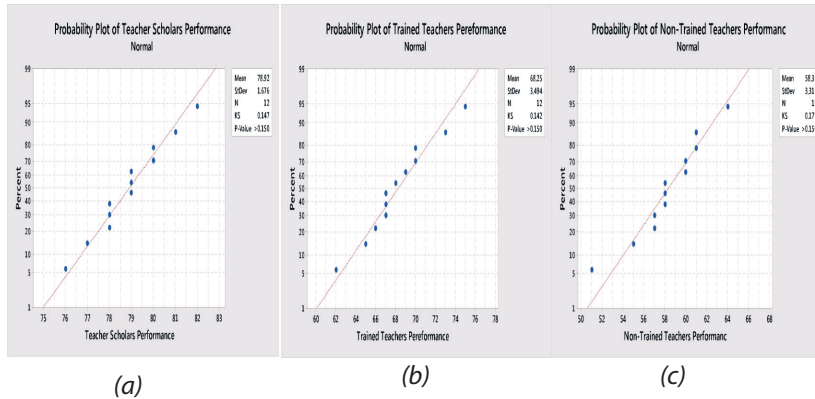


Figure 3. Normality Tests Results on the Performance among Different Groups of Teachers

Based on the figure 3 above, the density of probability of data sets, with p-values greater than 0.05, depicts the normality of scores among the teacher scholars, trained teachers and non-trained teachers using the Normality test.

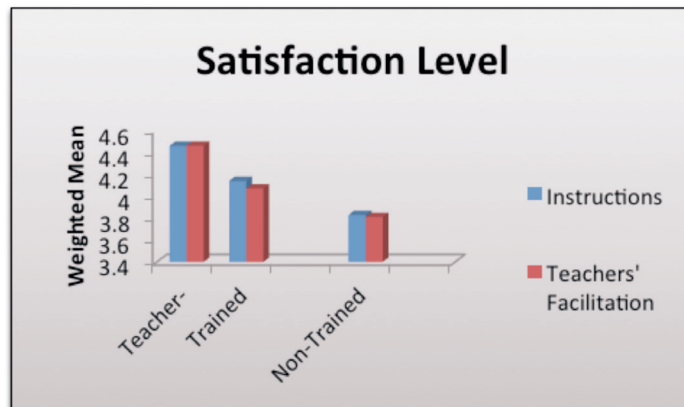


Figure 4. Satisfaction Level of Pupils on MTB- MLE Implementation in the Classroom

The figure above projects the summary of pupils' satisfaction level on the implementation of the MTB- MLE program in the classrooms based on instruction and facilitation respectively. It is evident from the data presented that the pupils' satisfaction level for the teacher- scholars are higher than the pupils coming from the school and division-trained teachers as well as those who are not trained. The data further shows that pupils coming from non-trained teachers have less satisfaction compared to those pupils whose teachers are trained. The data implies that when the teachers are trained in the appropriate methodologies attune to the concepts of MTB- MLE, pupils will have high level of satisfaction for teachers' lesson instruction and facilitation skills. Moreover, the data implies that the certificate program will enhance teachers' ability in rousing learners' level of satisfaction in the lesson.



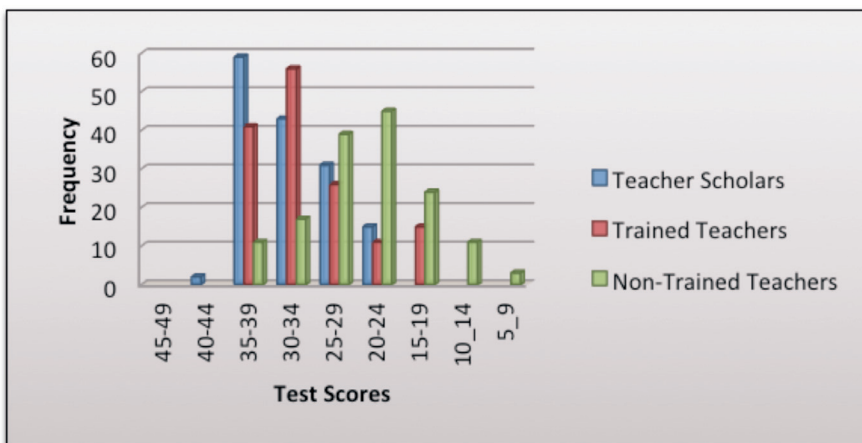


Figure 5. Pupils' Performance

Figure 5 presents the pupils' performance revealed in their exam scores. The respondents include pupils coming from the teacher- scholars; division and school- based trained teachers and from the non- trained teachers. The result shows that a large number of pupils from the teacher- scholars have significantly achieved higher scores compared to those pupils whose teachers were trained only in the school or division level as well as those that are not trained at all. It clearly shows that pupils coming from non- trained teachers have very low scores compared to other pupils. Meanwhile, two pupils coming from the trained-

scholars have achieved higher examination scores. The result implies that the academic achievement of the pupils is greatly dependent on the teachers' competencies and ability in delivering the lesson in MTB- MLE context. Moreover, it further implies that the certificate program had helped the pupils to attain higher academic results due to teachers' appropriate teaching scheme and pupils' learning interaction and understanding. Additionally to verify the normality of pupils' performance in the MTB-MLE examinations conducted, a normality test was conducted. The results are shown below.

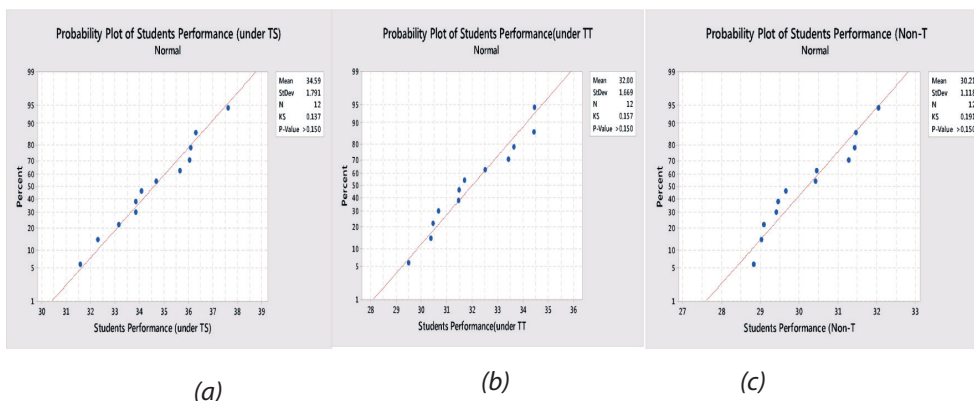


Figure 6. Normality Tests Results on Student's Performance under Various Types of Teachers



The normality test results revealed that the Students Performance under various types of teachers manifest normal data sets with p-values greater than 0.05.

To test the differences of teachers' and pupils' performances, one-way anova and pairwise comparison on differences using Tukey test was performed by the researchers.

*Table 1: One-Way Analysis of Variance on Differences of Teachers' Performance*

Source	DF	Adj SS	Adj MS	F-Value	P-Value
Factor	2	2543.2	1271.58	146.81	0.000
Error	33	285.8	8.66		
Total	35	2829.0			

Model Summary			
S	R-sq	R-sq(adj)	R-sq(pred)
2.94306	89.90%	89.28%	87.98%

Table 1 depicts the significant difference of the teachers' performance using One-Way Analysis of Variance. A significant difference exists among teacher-scholars, trained-teachers and non-trained teachers' performance. The result indicates that there is significant difference on the teaching performances of teachers with a p-value is less than 0.05 level of significance with an F-difference of 146.81 and an r-squared of 89.90%. This implies that the teacher-scholars who have undergone

the MTB- MLE Certificate Program had evidently gained the expected competencies in teaching MTB- MLE to the pupils compared to the trained-teachers and non-trained teachers. Furthermore, the certificate program had achieved successfully its aim of developing teachers' knowledge and teaching skills well in mother tongue. To further verify the difference of teachers' performances, pairwise comparisons using Tukey Test were summarized below.

*Table 2: Pairwise Comparisons on Differences of Performance among Various Groups of Teachers using Tukey Test*

Factors	n	Mean	StDev	95% CI
Teacher Scholars	12	78.917	1.676	(77.188, 80.645)
Trained Teachers	12	68.25	3.49	( 66.52, 69.98)
Non-Trained Teachers	12	58.333	3.312	(56.605, 60.062)
Pooled StDev = 2.94306				

Table 3. Differences of Means among Various Groups of Teachers

Difference of Levels	Difference of Means	SE of Difference	95% CI	t-Value	P-Value
<b>Trained Teachers</b>					
Versus Teacher Scholars	-10.67	1.20	(-13.61, -7.72)	-8.88	0.000
<b>Non-Trained Teachers</b>					
Versus Teacher Scholars	-20.58	1.20	(-23.53, -17.64)	-17.13	0.000
<b>Non-Trained Teachers</b>					
Versus Trained Teachers	-9.92	1.20	(-12.86, -6.97)	-8.25	0.000

Considering the results of Tukey Test, tables 2 and 3 show that there is evidently a significant difference of teachers' performances among the various groupings with p-values equivalent to

0.000 which is less than 0.05 level of significance. Furthermore, the teacher scholars had the greatest mean and the lowest standard deviation.

Table 4: One-Way Analysis of Variance on Differences of Pupils' Performance

Source	DF	Adj SS	Adj MS	F-Value	P-Value
Factors	2	116.61	58.304	24.15	0.000
Error	33	79.68	2.415		
Total	35	196.29			
<b>Model Summary</b>					
S	R-sq	R-sq(adj)	R-sq(pred)		
1.55392	59.41%	56.95%	51.69%		

Table 4 shows the significant difference of pupils' performances in learning using MTB-MLE as a medium of instruction. A significant difference exists among pupils of teacher- scholars', trained-teachers and non-trained teachers' in terms of their academic achievement. The result indicates that the p-value is less than 0.05 level of significance with an F-difference of 24.15 and an r-squared

of 59.41%. The result reveals that the teachers' performance has a significant bearing to the academic achievement of the pupils. This implies that the MTB MLE Certificate program has evidently coached the teacher scholars to effectively deliver the concepts to the pupils in achieving academic achievement. The more trained teachers in MTB-MLE, the more pupils who will significantly develop

their academic achievement in the subject and in learning in general. To verify the results, pairwise comparisons under the various type of teachers using Tukey Test were summarized below.

*Table 5: Pairwise Comparisons on Differences of Pupils' Performance under Various Types of Teachers using Tukey Test*

<b>Factors</b>	<b>n</b>	<b>Mean</b>	<b>StDev</b>	<b>95% CI</b>
Teacher Scholars	12	34.593	1.791	(33.681, 35.506)
Trained Teachers	12	32.001	1.669	(31.088, 32.913)
Non-Trained Teachers	12	30.209	1.118	(29.297, 31.122)
Pooled StDev = 1.55392				

*Table 6. Differences of Means of Pupils' Performance under Various Types of Teachers*

<b>Difference of Levels</b>	<b>Difference of Means</b>	<b>SE of Difference</b>	<b>95% CI</b>	<b>t-Value</b>	<b>P-Value</b>
<b>Trained Teachers</b>					
Versus Teacher Scholars	-2.592	0.634	(-4.149, -1.036)	-4.09	0.001
<b>Non-Trained Teachers</b>					
Versus Teacher Scholars	-4.384	0.634	(-5.941, -2.828)	-6.91	0.000
<b>Non-Trained Teachers</b>					
Versus Trained Teachers	-1.792	0.634	(-3.348, -0.235)	-2.82	0.021

Using pairwise comparisons on differences of pupils' performances under various type of teachers using Tukey Test, tables 5 and 6 reveal that there is significantly greater disparity on pupils' performances in MTB-MLE under the various types of teachers with p-values less than 0.05 with 0.001, 0.000, and 0.021 values specifically. The pupils' academic performance under Teacher-Scholars obviously had the greatest mean among the students in the regions. These results have been reinforced by the scatter plots on the impact of teachers' performances per group to their pupils' academic performances as shown below.



Figure 6. Scatterplots of Teacher's Performance to their Pupils' Academic Performance

The figure 6 (see a, b, c above) shows the scatterplots of teachers' performance to each group of pupils' academic achievement. The scatterplots show some simple trend or pattern to be linear and non-linear on the measures to be compared. The non-linear behavior implies that at some point teachers' performances in the certificate program contribute somewhat affect to the academic performance of learners. In addition, the teacher-scholars and trained teachers in mother tongue-based multilingual education somehow have an impact on how pupils learn and grasp the learning competencies in Sinugbanong Binisaya, although, there are few of them that remains ineffective after exposing themselves with the training. However, the non-trained teachers have no discernable pattern of impact to the pupils learning experiences. For stronger relationships of these variables, teachers must undergo intensive series of trainings and workshops in Sinugbanong Binisaya including appropriate instructional materials in MTB-MLE.

#### 4.0 Conclusions

The study concludes that the training program such as the MTB- MLE Certificate Program is

effective in improving teachers' delivery of instruction utilizing MTB- MLE concepts and principles. Moreover, the trained teachers increased pupil's satisfaction level in terms of learning and the teachers' performance in relation to content, classroom procedures, routines and management and teacher- pupil interactions have significantly developed. Thus, provisions and supplementary training services must also be given to other teachers to further produce pupils with high academic achievement in their first language appropriately.

#### 5.0 References

- Board of National Education, General Policies on Education, 1999-2001, 2003-2010 and 2013-2014
- Davis P. (1991). *Cognition and Learning: A review of the literature with reference to ethnolinguistic minorities*. Dallas, TX: SIL
- Malone, Susan. (2010). *Planning Mother- tongue based education programs in minority language communities*. Retrieved on August 17, 2014 from <http://www.sil.org/acpub/repository/MLE%20Program%20Planning%20manual.pdf>.

- Malone, Susan and Malone, Dennis, 2010. *Two-tract approach to teaching reading and writing in pupils' first language*. Unpublished manuscript.
- Martin, M.O., Mullis, I.V.S., & Foy, P. (with Olson, J.F., Erberber, E., Preuschoff, C., & Galia, J. (2008). *TIMSS International Mathematics Report: Findings from IEA's Trends in International Mathematics and Science Study at the Fourth and Eighth Grades*. Chestnut Hill, MA: TIMSS & PIRLS International Study Center, Boston College.
- Mathewson, C. (1994). Reading Comprehension as Influenced by Attitude. School of Foreign Languages, Wuhan University of Technology, Wuhan 430070, China
- Novak J. & Hanesian, H. (1978). *Educational Psychology: A Cognitive View*: Holt, Rinehart and Winston, New York.
- Swinney, J.M. (2008). Transfer of Learning: Problem-based Learning in the New Millennium. Educational Journal for Teachers. Lefty Publication. Batesville, Indiana.
- UNESCO. (2010). Summary. *Education for All Global Monitoring Report*. PARIS. UNESCO. Retrieved on August 12, 2014 from <http://unesdoc.unesco.org/images/0019/001911/191186e.pdf>
- Worldbank. 2005. Education NOTES. In their own language. *Education for All*. Retrieved on September 3, 2014 from <http://www.worldbank.org/educator>.
- POLICIES/ MEMORANDUM ORDERS**
- Department of Education (2012). Republic Act 10533. *Enhanced Basic Education Act of 2013*. Retrieved on September 3, 2014 from <http://www.gov.ph/2013/05/15/republic-act-no-10533/>
- Dep Ed Order No. 32 (2012). Implementing Rules and Regulation of the Republic Act RA No 10157 Otherwise known as the "Kindergarten Education Act" Retrieved on September 3, 2014 from [http://ceap.org.ph/upload/download/201210/17141259891\\_1.pdf](http://ceap.org.ph/upload/download/201210/17141259891_1.pdf)
- Dep Ed Order No. 16 (2012). Guidelines in the Implementation of the Mother-tongue based Multilingual Education. Retrieved on September 16, 2014 from <http://deped.gov.ph/orders/do-16-s-2012>