

Effectiveness of Indigenized Learning Module for Grade II Ayta Pupils

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Abstract - *The classroom action research focused on the Effectiveness of Indigenized Learning Module for Grade II Ayta pupils in Bueno Elementary School, Capas West District. The diverse group of learners in Bueno, Capas, Tarlac were mixed ethno linguistic group of Ayta Mag Antsi, Sambal Botolan, Ayta Abellen and Capampangan. The Indigenized Module in Improving Aytas' Number Sense used the indigenous language of Ayta Mag Antsi and Sambal Botolan because of dominant used of the language in Grade II. The implementation of Indigenized Module on Mathematics conducted during the third quarter of the school year 2018-2019. The researcher used Purposive sampling method for non-probability sampling technique that was selected with the 36 Grade II IP learners. The one Group Pretest/ Posttest Design with Table of Specification were used in the study. The instrument used in the test is Kuder-Richardson Formula 20. Furthermore, the researcher used interview questions on learning experiences and observation notes. The scores subjected to test of difference or t-test in order to identify the significant difference of their scores supplemented by Shapiro-wilk test for normality. The Indigenized Module in Improving Ayta's Number Sense was effective. Findings revealed that the used of Indigenized Module improved the academic performance of the IP learners. In addition, they obtained higher mean in their posttest and delayed posttest compared to their pretest which lead to higher mean percentage score. Accepting the fact that innovative teaching approaches had a great influence in encouraging IP learners to perform better with the help of the culture bearer, the researcher was able to confirm that Indigenized Module was effective. Lastly, IP learners were active on the class especially when the culture bearer explains the lesson using the indigenous language while the IP learners who can't speak Ayta language were silent however the non-IP teacher explains the lesson using the language of Capampangan and Tagalog for them to understand.*

Keywords – ayta, indigenized, module, mathematics, IP learners

INTRODUCTION

Indigenous peoples continue to be over-represented among the poor, the illiterate, and the unemployed. Indigenous peoples number about 370 million. While they constitute approximately 5 per cent of the world's population, indigenous peoples make up 15 per cent of the world's poor. They also make up about one-third of the world's 900 million

extremely poor rural people. (Minority Rights Group International, 2008)

In the Philippines, the indigenous people are officially recognized by the Philippine Constitution and the Indigenous Peoples' Rights Act (IPRA). There are no accurate figures on the population of indigenous peoples because of the lack of any formal census. The most recent figures based on an unofficial survey conducted by the National Commission on Indigenous



Peoples (NCIP) estimates the population of indigenous peoples in the Philippines to be between 12–15 million, but the actual population may be higher. (National Commission of Indigenous Peoples, 2009)

Indigenous peoples roughly constitute 10-15 per cent of the total population of the Philippines and are present in 65 of the country's 78 provinces. The majority of indigenous peoples (61 per cent) are found in Mindanao, 33 percent are found in Luzon, and 6 percent are in Visayas (National Commission on Indigenous People 2009).

The IPRA identifies eight ethnographic regions in the country, namely: the Cordillera Administrative Region (CAR), Region I, Region II, Region III and rest of Luzon, Island group, Southern and Eastern Mindanao, Central Mindanao, and Northern and Western Mindanao. However, these ethnographic regions were designated by the Government primarily for administrative purposes and for representation in its National Commission on Indigenous Peoples (NCIP), rather than based on actual ethno-linguistic groupings. The Philippine indigenous peoples are made up of widely diverse cultures. The estimated total number of distinct indigenous ethnic groups ranges from 70 to 140. The NCIP website presents a list of 90 entries, while a compilation from various sources shows 109 indigenous ethno-linguistic groups and subgroups. Each indigenous group has its own distinct identity, language and indigenous socio-political and cultural systems and practices, with some similarities between and among others. (Indigenous People Right Act of 1997; National Commission on Indigenous People)

The estimated total numbers of population in Barangay Bueno, Capas, Tarlac ranges from 380 to 400 peoples. The barangay

have 5 Sitios, namely: Sitio Manibukyut, Canaan, Bunga, Katipunan and Hot Spring.

The populations in Bueno Elementary School are 162 boys and 154 girls with the total of 316 IP learners. They have 10 IPED teachers and 1 School Principal in the school year 2018-2019.

In achieving quality education the teacher needs to be efficient. However, this may not occurred without the use of appropriate instructional materials and modules. Lack of professional training and professional development of teachers can be a key source for any dissatisfaction in the quality of their teaching. The DepEd Order no. 50 s. 2016, the Hiring Guidelines for Teacher I Position in Schools Implementing Indigenous Peoples Education Effective School Year 2016-2017. The teacher's applicant in DepEd followed the localization law wherein they were teaching in their residential school. They helped the IP learners to be comfortable with their IP teachers if they were in same cultural manners on their tribes.

The teachers in Bueno Elementary School have curriculum concerns relative to the IP learners' education. The teacher's observed that the IP learners have difficulties in adopting the school curriculum since the experiences of IP learners may not be relevant to the K to 12 curriculums. Thus, they have comprehension and adjustment difficulties in learning the lessons. However, the DepEd Order no. 32 s. 2015 "Adopting the Indigenous Peoples Education Curriculum". The teacher were adopted the education policy framework for IP learners to easily teach the lessons. Through DepEd Order No. 18 s. 2011 "Guidelines in conducting the Mother Tongue- Based Multilingual Education Training", the teacher used the indigenous language of Mixed Ayta Mag-antsi and Sambal Botolan as medium of

instructions to be more efficient in teaching. The multi-diverse group of learners in Bueno Elementary School were mixed ethno linguistic group of Ayta Mag-Antsi, Sambal Botolan, Ayta-Abellen and Capampangan.

There are other problems met by the teachers using information communication technology in Bueno Elementary School related to the IP learners' performance in school. There has been significant growth in access to computers and the Internet; however the dominance of English and other non-indigenous languages in the internet was one of the major problems of IP learners. However, the IRR of Republic Act No. 10533 Enhanced Education Act of 2013, the teacher were contextualized, localized and indigenized the curriculum based on their educational and social context. These implied that instructional materials and other learning resources were in line with indigenous communities.

The aforementioned situation prompted the researcher to conduct a study on the IP learners in Bueno Elementary School, Capas West District and to adopt the Indigenized Module in Improving Aytas' Number Sense.

Objectives Of The Study

IP learners. The findings of this study helped the IP learners to develop their number sense in solving mathematics problem. Furthermore, is to enrich the pupil's performance in solving division, fraction, reading and writing money, half and quarter circles and line of symmetry during third quarter. Integration of Values Education and Mother Tongue-Based Multilingual Education using the indigenous language of Mixed Ayta Mag-Antsi and Sambal Botolan in addressing pupil's difficulties. The multi-diverse groups of learners in Bueno Elementary School were mixed ethno-linguistic group of Ayta Mag-

Antsi, Sambal Botolan, Ayta Abellen and Capampangan. The integration of localized learning materials on pupil's activities can easily understand the mathematics problem. Lastly, enriched pupils experienced in solving mathematical problem.

IPED Teacher. The conducted and findings with reflections to generate from this study enhanced teacher's potentials in delivery of contextualized, localized and indigenized learning module and served as facilitator of learning. Furthermore, is give assistance to teacher and facilitate daily activities in teaching learning process. Lastly, is to assist the teacher in using the indigenous language of Mixed Ayta Mag-Antsi and Sambal Botolan as the medium of instruction in Mathematics for Grade II.

Parents. The findings of this study served as guide for parents on how to teach their children using indigenized module. Lastly, is to benefits the parents in teaching their child during class suspension due to heavy weather condition.

School Administrator. The findings of this study helped the School Administrator to monitor and improve the aspects of teaching and learning process of the IPED implementing school.

Elders of the community and Culture bearer. The findings of this study served as a guide for the elders of the community and culture bearer to collaborate with the IPED teacher on how to teach the IP learners with culture integration.

Curriculum Developer. This study served as basis for curriculum developer to make a curriculum that were contextualized, localized and indigenized for the IP learners.

Researcher. This study served as the contribution of the researcher to the IPED community and to the fund of knowledge of education related on Mathematics.

Future Researcher. This study served as basis for follow-up researches and to conduct an in-depth study on how IP learners' issues can be addressed.

MATERIALS AND METHOD

Type of Research

This study focused on the Grade II IP learners enrolled in Bueno Elementary School, Capas West District with the used of the mixed method research. Quantitative research via statistical, mathematical or computational techniques while Qualitative research like an in-depth interview.

The type of study was Action Research. It was experimental method, particularly one-shot pre-test-post-test design with delayed observation to assess retention of IP learners. This method was appropriated since the study established the effectiveness of a proposed Indigenous learning module in Mathematics. Particularly, following the model below.

$$R \quad O_1 \quad X \quad O_2 \quad O_3$$

where: O = Grade II IP learners

O₁ = pretest of the IP learners,

X = use of Indigenized Learning Module

O₂ = posttest of the IP learners

O₃ = delayed posttest of the IP learners.

Additionally, the IPED teacher used observation notes and interview questions for Grade II pupils as data gathering instrument.

Respondents

This study conducted with 21 boys and 15 girls the total of thirty six (36) Grade II at Bueno Elementary School, Capas West District, with the IP learners' ages 9 to 10 years old as respondents of the study. They were the most appropriated respondents in this study because they were under the tutelage of the IPED implementing teacher in their Mathematics

subject. Additionally, based on the documentary analysis of their profile, the pupils belong to the multi-diverse group of learners with mixed of ethno-linguistic group of Ayta Mag-Antsi, Sambal Botolan and Ayta Abellen. The assimilated cultures of learners were many indicators of strong Capampangan influence.

Sampling Method

The researcher used Purposive sampling method for a non-probability sampling technique that was selected with the total population of the Grade II IP learners and enumerated all of them in the data gathering. Since the number of the respondent were 36 IP learners they were manageable on the part of the researcher and considering that she teaches Mathematics to them in the school, this method were the most appropriate.

Proposed Innovation/Intervention/Strategy

The researcher proposed an innovative material entitled "Indigenized Module in Improving Aytas' Number Sense".

This indigenized learning module aimed to determine the effectiveness of the innovative material. This learning module have ten (10) least learned lesson on third quarter to strengthens the abilities of IP learners in solving mathematical problems especially in solving division, fraction, reading and writing money, half and quarter circles and line of symmetry during third quarter. The illustrations provided in the module were localized materials found in the environment. The indigenized module was a line in the national competency since the innovative material was adapted from Learning Material of Tagalog K to 12 Curriculum.

Also, the indigenous languages used were mixed Ayta Mag-Antsi and Sambal Botolan which suitable to the IP learners since Bueno Elementary School were diverse group of IP learners. The languages used by the IP learners were mixed of ethno-linguistic group of

Ayta Mag-Antsi, Sambal Botolan and Ayta Abellen. The Capampangan learners used Ayta Mag-Antsi while Ilokono learners used Ayta-Abellen. The Barangay Bueno, Capas, Tarlac have a larger number of Capampangan. In this reason, the researcher developed an innovative material using the mixed Ayta Mag-Antsi and Sambal Botolan than Ayta Abellen.

Instruments

The main data gathering instrument of this study were constructed Pre-test/Posttest and Delayed Posttest with table of specification from third quarter.

Upon completion of pre-test/post-test and delayed posttest with table of specification, the researcher showed it to three master teachers for face validity. The translations and illustrations of mixed Ayta Mag-Antsi and Sambal Botolan were validated by the District Superintendent of Ayta Peoples District-United Methodist Church, Pagmimiha (KAKAI INC.) and Labay Ku Inc. Their suggestions were incorporated for the improvement of the instrument. The IPED focal person checked the curriculum validation.

The test undergone reliability test using KR20. The difficulty and discrimination index of the pretest/posttest likewise were considered. It was found out that the test has 0.53 difficulty index, 0.17 discrimination index, and a reliability coefficient of 0.81.

In addition, delayed posttest was given to determine the retention skills of the IP learners. The delayed posttest undergone reliability test using KR20, the difficulty and discrimination index found out that the test has 0.53 difficulty index, 0.16 discrimination index, and a reliability coefficient of 0.90.

Furthermore, the researchers were used interview questions on learning experiences and observation notes.

The researcher floated the pretest, posttest and delayed posttest herself to ensure 100% retrieval. The accomplished assessment were tabulated and interpreted based on appropriate statistical tools.

Data Collection Procedure

The researcher seeks to have permission to the School Principal, IPED Focal Person, Chief Education Supervisor, School Division Superintendent, elders of the tribes or community, parents and Grade II IP learners.

Before the beginning of the experiment, the IP learners were given a pretest composed of thirty (30) items. These were to determine their initial knowledge before the experimentation. The IP learners were taught on the topics of solving division, fraction, reading and writing money, half and quarter circles and line of symmetry during third quarter using the Indigenized Learning Module in Improving Aytas' Number Sense. Lessons were facilitated by the IPED implementing teacher using combined traditional and modern technology in teaching. In addition, the teacher invited a culture bearer to share their culture related to the topics. The culture bearer was translated and discussed the topic using the indigenous language of IP learners while the teacher used Capampangan and Filipino language. Additional activities were provided like outdoor activities of investigatory approach. Quizzes, assignments, poll questions, and discussions were some of the activities to assess retention of IP learners. The researcher used interview questions on learning experiences and observation notes.

After five weeks of exposure, the pupils were given a posttest, and then compared in the pretest. The increase in means determined the effectiveness of the Indigenized Module in Improving Aytas' Number Sense. A thirty-item

delayed posttest was also administered after a week to measure the skills retained among the pupils. The increase in means in their delayed posttest was used as basis of concluding that there was retention of learning using Indigenized Module. An interview on how pupils described their experiences after learning the indigenized module.

Ethical Considerations

The researcher considered the ethical issues of Indigenous People in their community by means of abiding with the research provisions and guidelines concerning Indigenous People as directed by various DepED Orders, namely DepEd Order no. 62 s. 2011 Adopting the National Indigenous Peoples (IP) Education Policy Framework. DepEd Order no. 51 s. 2014 National Indigenous Peoples Education (IPED) Policy Framework. DepEd Order no.32 s. 2015 adopting the Indigenous Peoples Education Curriculum Framework. DepEd Order no. 34 s. 2017 Guidelines on the Formation of Consultative and Advisory Bodies on Indigenous Peoples Education (IPED) in Regions Implementing the IPED Program. DepEd Order no. 3 s. 2017 Multiyear Implementing Guidelines on the Allocation and Utilization of the Indigenous Peoples Education Program Support Fund.

The Philippine Constitution of 1987 explicitly recognizes the rights of indigenous cultural communities. As stated in the Constitution Section 22, Article II:

“The State recognizes and promotes the rights of indigenous cultural communities within the framework of national unity and development.”

The researcher was initially access parents’ permission that their children involved in the experiment through assent and consent letters. Duly signed letters served as bases of the researcher that the IP learners were given

permission by their parents to participate in the study.

Parents and pupils through a scheduled PTA meeting/conference made aware that the results of the study may not be affected the academic performance of the pupils.

Furthermore, the results expressed in general terms and the researcher kept the same in utmost confidentiality to protect the identities of the subjects.

The researcher seeks a permission to the elders of the community to conduct a study related to IP learners especially with the integration of IP culture related in mathematics.

Data Analysis

The use of mean and the mean percentage score (MPS) were considered to describe the pretest posttest and delayed posttest scores of the IP learners. To determine the variability of the scores of the group, the standard deviation was employed. The paired sample *t*-test was also used to determine the significant difference between the performances of the pupils in their pretest, posttest, and delayed posttest.

For the interpretation of IP learners’ performance, the following categories were used:

MPS Range	Description
90% - 100%	Outstanding
85% - 89%	Very Satisfactory
80% - 84%	Satisfactory
75% - 79%	Fairly Satisfactory
74% - below	Did Not Meet Expectations

The One Group Pretest- Post Test Design was used in the study. The scores of the IP learners in pre-test and post-test were recorded after they have taken the tests. Their scores subjected to test of difference or *t*-test in order to identify the significant difference of their scores supplemented by Shapiro-wilk test for normality. In addition, the researcher used

observation note and interview question on learning experiences. This may revealed the effectiveness of Indigenized Module in Improving Aytas' Number Sense for Grade II Mathematics. Lastly, is to give recommendations to maximize the use of Indigenized module.

RESULTS AND DISCUSSION

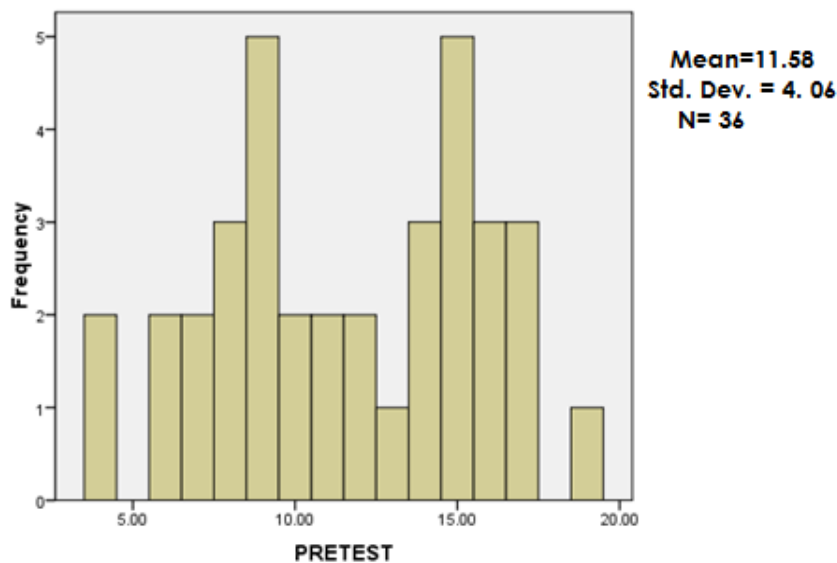
In this part are the presentation, discussion and interpretation of the results of the following analysis. Its covers the main topics. (1) The number sense of the Grade II IP learners described as measured by a pretest. (2) The effectiveness of the Indigenized Learning

Module in improving the mathematical ability of the IP learners is assessed. (3) The respondent described their learning experience after using the indigenized module. (4) The recommendations could be proposed to maximize the use of Indigenized Module in Improving Aytas' Number Sense.

Number Sense of the Grade II IP learners describe as measured by a pre-test.

One of the objectives of this study was to describe the IP learners' prior knowledge in Mathematics before they were exposed to the use of Indigenized Module in Improving Ayta's Number Sense.

Histogram 1.1. Pretest of IP learners



Histogram 1.1 shows the performance of IP learners pretest in mathematics. In their pretest, the IP learners obtained a mean of 11.58 (MPS of 38.60%) and a standard deviation of 4.06. This implies that the IP learners' mastery level on the lesson included in the test is only

38.60% (Did Not Meet Expectations). This showed further that the IP learners had low initial knowledge on the competencies of solving division, fraction, reading and writing money, half and quarter circles and line of symmetry.

Table 1.1. Test of Normality in Pretest

	Shapiro-Wilk		
	Statistic	Df	Sig.
PRETEST	0.954	36	0.143

The statistical analysis presented in Table 1.1 shows the Test of Normality in Pretest using Shapiro-Wilk. The significance in Pretest is 0.143 data (scores) and the p-value is greater than 0.05.

This indicates strong evidenced that the pretest follows a normal distribution.

Effectiveness of the Indigenized Learning Module in improving the mathematical ability of the pupils.

Table 2.1. Score of IP learners in Pretest, Posttest and Delayed Posttest

Pupil	Pretest	Posttest	Delayed Posttest
1	4	29	28
2	11	28	29
3	16	28	29
4	15	28	29
5	14	29	29
6	15	29	28
7	6	29	29
8	8	28	29
9	16	30	29
10	15	30	28
11	11	27	29
12	7	30	28
13	4	29	29
14	17	29	29
15	17	29	28
16	14	29	29
17	13	29	26
18	17	27	29
19	15	28	29
20	6	30	28
21	14	27	28
22	12	29	30
23	19	29	30
24	12	28	29

25	9	30	29
26	8	30	29
27	9	27	26
28	15	30	29
29	16	29	29
30	9	30	30
31	10	26	29
32	9	30	30
33	10	30	29
34	8	29	28
35	9	22	26
36	7	29	28
MEAN	11.58	28.61	28.61

Table 2.1 shows that the mean of their pretest is 11.58 and both means for posttest and delayed posttest are 28.61. Findings revealed that

they have increased in their posttest and delayed posttest compared in their pretest.

Table 2.2. T-Test between the Means of Pretest and Delayed Posttest

Statistics	Pretest	MPS	Delayed Posttest	MPS	Difference	MPS
Mean	11.58	38.60	28.61	95.37	17.03	56.77
Standard Deviation	4.06		0.99			
$t = -25.520$		$df = 35$		$Sig. (2-tailed) = 0.000$		

Table 2.2 shows the scores in their delayed posttest are high (mean=28.61, SD=0.99) giving a MPS of 95.37% (Outstanding). This high performance of the IP learners resulted from the use of Indigenized Module in Improving Ayta's Number Sense, since it was observed that majority of the IP learners become more enthusiastic in the subject, every time the classes start. IP learners became more interested in the individual and group games, drills and counting numbers through localized materials provided by the teacher. It enables IP learners to become more engaged and interested in the lesson. Many of them became more participative during class discussion and had always been excited of completing the activities in the Indigenized

Module in Improving Ayta's Number Sense. The use of Indigenized Module showed a positive effect not only to the IP learners' achievement but also to the IP learners who can't speak Ayta language. The use of Indigenized Module contributed to the improvement on the performance of the IP learners.

To show statistically that the use of Indigenized Module in Improving Aytas' Number Sense improved IP learners' performance, a dependent sample t-test between means was conducted.

The statistical analysis presented in Table 2.2 shows the significance of the difference means (17.03) in the pretest and delayed posttest. Since $t(35) = -25.520$ and the p-value < 0.05 , it can

noted that this was highly significant. This indicates a strong evidence to reject the null

hypothesis that there is no difference between their scores in pretest and delayed posttest.

Table 2.3. T-Test between the Means of Posttest and Delayed Posttest

Statistics	Posttest	MPS	Delayed Posttest	MPS	Difference	MPS
Mean	28.61	95.37	28.61	95.37	0	0
Standard Deviation	1.55		0.99			
<i>t = 0.000</i>		<i>df = 35</i>		<i>Sig. (2-tailed) = 1.000</i>		

Table 2.3 shows the performance of IP learners in posttest and delayed posttest are the same in mean, standard deviation and MPS. The IP learners obtained a mean of 28.61 (MPS of 95.37%) and a standard deviation of 1.55. This implies that the IP learners' mastery level on the lesson included in the test is 95.37% (Outstanding).

The statistical analysis presented in Table 2.3 shows the significance of the difference means zero (0) in the posttest and delayed posttest. Since $t(35) = 0.000$ and the p -value < 0.05 , it can be noted that this is not significant. This indicates a strong evidence to accept the second null hypothesis that there is no difference between their scores in post and delayed posttest.

The respondent described their learning experience after using the indigenized module.

The researcher interviewed the IP learners who can speak the Ayta language and IP learners who can't speak the language of Ayta about the learning experiences after using the Indigenized Module in Improving Aytas' Number Sense. In addition, the teacher used an observation notes.

Based on the interview question asked by the teacher. The following are the respondent: According to the IP learner 1, she was happy and enjoyed the lesson especially that

the teacher used the indigenous language of Ayta Mag-antsi and Sambal Botolan. The IP learner 2 described the learning experiences that she was excited because of the individual and group games, drills and student activities. In addition, IP learner 3 said that the lesson was easy to understand. He was happy while dividing the number of stones, leaves, sticks and calamansi. Furthermore, IP learner 4 said that her mother teach him at their house using the take home activities because her mother understand the Ayta Mag-Antsi and Sambal Botolan. Lastly, the IP learner 5 who can't speak the Ayta language said that he don't understand the Ayta Mag-antsi and Sambal Botolan used by the culture bearer but he understand Tagalog and Capampangan language used by the teacher.

Based on the observation of the teacher, the IP learners were active on the class after the used of the Indigenized module while the IP learners who can't speak the Ayta language were silent because they don't understand. In this reason the teacher explained the lesson using the language of Capampangan while culture bearer speak with the used of indigenous language of Ayta Mag-antsi and Sambal Botolan.

CONCLUSION AND RECOMMENDATION

Based on the results and findings, the following conclusions were derived. (1) The used of Indigenized Module improved the academic performance of the IP learners. They obtained higher mean in their posttest compared to their pretest which lead to higher mean percentage score. (2) Posttest and Delayed posttest were same test result and still in high level mean percentage score. (3) Accepting the fact that innovative teaching approaches had a great influence in encouraging IP learners to perform better with the help of the culture bearer, the researcher was able to confirm that Indigenized Module was effective. (4) IP learners were active on the class especially when the culture bearer explains the lesson using the indigenous language while the IP learners who can't speak Ayta language were silent however the non- IP teacher explains the lesson using the language of Capampangan and Tagalog for them to understand.

The following recommendation proposed based on the test results of Indigenized Module in Improving Aytas' Number Sense effectively: (1) Indigenized Learning Module in Improving Ayta's Number Sense may adopted in teaching Grade II in IPED implementing school were the IP learners used the indigenous language of Ayta Mag-antsi and Sambal Botolan. (2) The Indigenized Learning Module was applicable to use in multi-diverse group of IP learners with mixed ethno linguistic group of Ayta Mag-antsi, Sambal Botolan and Ayta Abellen. The assimilated culture which there were many indicators of strong Capampangan influence. (3) The non-IP teachers invited culture bearer to explain, translate and discuss the culture of the tribes related to lesson because the non-IP teachers cannot speak Ayta language and lack of understanding in the IP culture and traditions.

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