



## LOCALIZATION AND CONTEXTUALIZATION IN TEACHING BIOLOGY FOR GRADE 7 STUDENTS OF PALIPARAN NATIONAL HIGH SCHOOL FOR SCHOOL YEAR 2018 - 2019

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### ABSTRACT

*Localization and contextualization are the new strategies to teaching-learning process and highlighted in the Philippines' K to 12 Curriculum. This study determined the effect of localization and contextualization in teaching biology in enhancing the academic performance of selected Grade 7 students of Paliparan National High School during the second quarter of the school year 2018 - 2019. The study was carried out using experimental study, particularly the pretest and posttest control group design. Two sections were used and this was done by random sampling. There are forty students taught with the use of localized and contextualized teaching (experimental) and forty students taught without the use of localized and contextualized teaching (control). The data gathered were treated using mean, standard deviation, and T-test. SPSS 14.0 software was used. Mean and standard deviations were also used in finding out the students' pretest, and posttest performances taught with the use of localized and contextualized teaching and without the use of localized and contextualized teaching. Paired T-test for correlated means were used in finding out the difference between the pretest and posttest performances of the two sections and Independent T-test for correlated means were used to find the difference between both posttest performances of the two sections. Findings revealed that posttest performances of both sections were significantly different. Teachers in any subject area should try to integrate localization and contextualization in teaching because it shows a positive effect as regards to the performance and motivation of students towards the lessons.*

*Keywords: Localization, Contextualization, Biology, Experimental study, Philippines*

### INTRODUCTION

Science teachers are facing challenges in delivering the lesson in which the content is meaningful and relevant to the lives of the students while relating it from their community or locality, involving local culture as curriculum's integral part, which could develop knowledge, skills, abilities and positive attitude towards their study. The execution of K to 12 curriculum gave some changes to the educational system of the Philippines for the improvement of our learners to be holistically and globally competitive in

science education across the nation. These significant changes are under the Philippine Republic Act 10533 recognized as "The Enhanced Basic Education Act of 2013". One It is stated that: "The curriculum shall use the spiral progression approach to ensure mastery of knowledge and skills after each level" same as in executing policy which state that "the curriculum shall be contextualized and global and shall be flexible enough to enable and allow schools to be localized, indigenous and enhance the same based on their respective educational context." (Rule II, Curriculum Section, 10.10.2). Based on international evaluation studies on TIMSS 1995,

1999, 2003, the performance of the students is constantly low. Students at high school performed weakly in knowledge, abstract comprehension and logic. It was highly observed also in the National Achievement Test of high school students given by the Department of Education in 2006 (Philippine Basic Education, 2013). According to UNESCO (2009), in Indonesia, the inclusion of the Local Curriculum Subject (LCS) as an independent subject is the primary change in their 1994 curriculum reform. However, LCS implementation is challenging. LCS tends to isolate the learners' experiences. The new curriculum applies "unity in policy and diversity in practice". The minimum standard of competency is centralized and the curriculum content, methods and assessment procedure are decentralized. This new curriculum attempts to deal with the congested curriculum through integration, diminution of instructional time and decentralization of methods, content, and assessment procedures. This study was conducted due to some concerns in learning encountered by the students from the teaching strategies of the teachers in Paliparan National High School. Even though Department of Education (DepEd) produced teacher's guide and learner's textbook which are localized and contextualized, it is more useful if the content of it is relevant and meaningful to the lives of the students relating it on the process of learning to their locality. Additionally, this study could help teachers to enhance their teaching in science through localizing and contextualizing the activities and instructional materials which is an important step in improving outcomes in general and quality education for all students. The value of localization and contextualization and its contribution in education had been proven in the previous studies; thus this action research determined the effect of localization and contextualization as strategies in biology teaching on Paliparan National High School Grade 7 students' academic performance for the school year 2018 - 2019. This study focused only on teaching Biology of second quarter and

participants are composed of heterogeneous students from selected sections in Grade 7.

## OBJECTIVES OF THE STUDY

The general objective of this study is to find out the result of localization and contextualization in teaching biology to enhance the academic performance of selected Grade 7 students of Paliparan National High School, S.Y. 2018 - 2019. Specifically, the following objectives aim the following: 1). Analyze the students' pretest and posttest performance after being taught in Biology without the use of localized and contextualized teaching; 2). Evaluate the students' pretest and posttest performance after being taught in Biology with the use of localized and contextualized teaching; 3). Determine the difference between the students' pretest and posttest performances after being taught in Biology without the use of localized and contextualized teaching; 4). Evaluate the difference between the students' pretest and posttest performances after being taught in Biology with the use of localized and contextualized teaching, and; 5). Determine the significant difference between the students' post-test performances taught in Biology with and without the use of localized and contextualized teaching.

## METHODOLOGY

This study used experimental design, where it focused on determining the effect of localized and contextualized teaching in Biology to the selected Grade 7 students' academic performance. This study used Grade 7 Generous and Considerate of Paliparan National High School. Each section consists of 40 students giving a total of 80 participants accounted in the study. Grade 7 Generous taught with the use of localize and contextualize teaching and the Grade 7 Considerate taught without the use of localize and contextualize teaching. To draw conclusions, the result of two sections in pretest and posttest were used. In selecting the number



of participants, this was done through simple random sampling. The selected Grade 7 students from Generous and Considerate of Paliparan National High School, were the respondent of this study. The request letter was submitted to the School Principal and Head Teachers asking permission to conduct the study. The researcher gathered data by administering the pretest after authorities' approval. The objectives and topics were similar in both groups but not in the used of teaching strategy. The topics covered the three chapters of Unit 2 (Biology). Pretest and Posttest were given to assess their performance. The examination is composed of 40 items multiple choice questions with four options. The researcher taught one group of students with the use of localized and contextualized teaching and the other group without the use of localized and contextualized instruction. Posttest was given to determine the academic performance of students in both groups. To make the results of this study reliable, standard deviation, mean and T-test for correlated means were used for analysis of data. Standard deviation and mean were used to find out the students' pretest and posttest performances taught without the use of localized and contextualized teaching. It also determines the students' performances in pretest and posttest taught in Biology with the use of localized and contextualized teaching. Paired T-test for correlated means was utilized to find out the significant difference between the two sections' pretest and posttest performances and Independent T-test for finding out the significant difference between the two sections' post-test performances.

**RESULTS AND DISCUSSION**

**1. Grade 7 Considerate' s pretest and posttest performances taught in Biology without the use of localized and contextualized teaching.**

Table 1 shows the Grade 7 Considerate' s pretest and posttest average scores of 11.80 and

Table 1. Grade 7 Considerate' s Paired Samples Statistics of pretest and posttest performances taught in Biology without the use of localized and teaching

		Mean	N	Standard Deviation	Standard Error mean
Pair 1	Pretest 1	11.80	40	4.85	.76644
	Posttest 1	17.17	40	4.37	.69142

17.17 respectively and a standard deviation of 4.85 and 4.37 for their pretest and posttest. It revealed that Grade 7 Considerate' s posttest score was increased scores taught even without. the use of localized and contextualized teaching though it was also observed that both the standard deviations were closed to each other, it means that most of the scores of the student are close to the average mean.

**2. Grade 7 Generous' pretest and posttest performances taught in Biology with the use of localized and contextualized teaching.**

Table 2. Grade 7 Generous' Paired Samples Statistics of pretest and posttest performances taught in Biology with the use of localized and contextualized teaching.

		Mean	N	Standard Deviation	Standard Error mean
Pair 1	Pretest 2	14.27	40	6.70	1.05975
	Posttest 2	32.32	40	3.87	.61225

Table 2 shows the Grade 7 Generous' performances in pretest and posttest taught in Biology with the use of localized and



contextualized teaching. Grade 7 Generous' pretest and posttest average mean were 14.27 and 32.32, respectively. The post-test standard deviation also was 3.87 which explained that most of their scores were close to the average mean. It was evident that there was an

increased score in both tests taught with the use of localized and contextualized teaching which proved that the more the students exposed in teaching strategies, the more they performed better in the class.

**3. Difference of Grade 7 Considerate' s pretest and posttest performances taught in Biology without the use of localized and contextualized teaching.**

**3.1 Paired Samples correlations of Grade 7 Considerate' s pre-test and post-test performances taught in Biology without the use of localized and contextualized teaching.**

Table 3. Paired samples correlations of Grade 7 Considerate' s pretest and posttest performances taught in Biology without the use of localized and contextualized teaching

		N	Correlation	Sig.
Pair 1	Pretest1 & Post test1	40	.551	.000

Table 3 shows the Paired samples correlations of Grade 7 Considerate pretest and posttest performances. It calculated that both tests were significant in 0.000 level and has a

moderately positive correlation value of 0.551 which means that even there was an increased score in the posttest, yet some of the scores were closely related to the pre-test scores.

**3.2 Paired Differences of Grade 7 Considerate' s pretest and posttest performances taught in Biology without the use of localized and contextualized teaching.**

Table 4. Paired Differences of Grade 7 Considerate' s pretest and posttest performances taught in Biology without the use of localized and contextualized teaching

		Paired differences					t	Df	Sig. (2-tailed)
		Mean	Standard Deviation	Standard Error mean	Difference's 95% confidence interval				
					Lower	Upper			
Pair 1	Pretest 1 Posttest 1	-5.37500	4.38931	.69401	-6.77877	-3.97123	-7.745	39	.000

Table 4 shows the Paired differences between Grade 7 Considerate' pretest and posttest performances. It shown that the calculated t-test value was -7.745 and 0.000 p-value for this t-test. It means that both tests were significantly different from each other because

the p-value was lower than the alpha value of 0.05. Also, the mean difference of both tests was 5.375, and for the confidence interval, the lower level was -6.77877, and the upper level was -3.97123, and it does not cross to 0, that means there was a difference. It supported by the study



of Ballesteros (2014) in Localized and Contextualized Science Activities in Improving Student' Academic Performance that exposure

of students in localized and contextualized teaching may help their performance better than those who were not exposed.

**4. Difference of Grade 7 Generous' pre-test and post-test taught in biology with the use of localized and contextualized teaching.**

**4.1 Paired Samples correlations of Grade 7 Generous pre-test and post-test performances taught in Biology with the use of localized and contextualized teaching.**

Table 5. Paired Samples Correlations of Grade 7 Generous pretest and posttest performances taught in Biology with the use of localized and contextualized teaching

		N	Correlation	Sig.
Pair 1	Pretest 2 & Posttest 2	40	.361	.022

Table 5 shows the correlation between Grade 7 Generous' pretest and posttest performances. It calculated that both tests were significant in 0.022 level and has a weak positive correlation value of 0.361 which means

that both tests' average mean scores are not close to each other. Most of the students have increased post-test scores compared to pretest scores.

**4.2 Paired Differences of Grade 7 Generous' pretest and posttest performances taught in Biology with the use of localized and contextualized teaching.**

Table 6. Paired Differences of Grade 7 Generous' pretest and posttest performances taught in Biology with the use of localized and contextualized teaching

		Paired Differences					t	Df	Sig. (2-tailed)
		Mean	Standard Deviation	Standard Error mean	Difference's 95% confidence interval				
					Lower	Upper			
Pair 1	Pretest 2 – Posttest 2	-18.05000	6.41692	1.01460	-20.10223	-15.99777	-17.790	39	.000

Table 6 shows the Grade 7 Generous' difference of pretest and posttest performances taught in Biology with the use of localized and contextualized teaching. It showed that the computed t-value was -17.790 and 0.000 p-value

for this t-test. It means that both tests were significantly different from each other because the p-value was lower than the alpha value of 0.05. Also, the mean difference of both tests was 18.05 and for the confidence interval, the lower



level was -20.10223 and the upper level was -15.997, and it does not cross to 0, that means there was a difference. Furthermore, this possibly implies that the students' exposure in localization

and contextualization in teaching Biology can improve their scores and performances better than those who were not

**5. Difference of Grade 7 Considerate' s and Generous' posttest performances taught in Biology without and with the use of localized and contextualized teaching.**

**5.1 Group Statistics of Grade 7 Considerate' s and Generous' posttest performances taught in Biology without and with the use of localized and contextualized teaching.**

Table 7. Group Statistics of Grade 7 Considerate' s and Generous' post-test performances taught in Biology without and with the use of localized and contextualized teaching

Post Tests		N	Mean	Standard Deviation	Standard Error mean
Scores	Considerate	40	17.17	4.37292	.69142
	Generous	40	32.32	3.87224	.61225

Table 7 shows the Group Statistics of both posttest results of Grade 7 Considerate and Generous. The average mean score of Grade 7 Considerate was 17.17 and 32.32 for Grade 7 Generous. Based also in their standard deviation, Grade 7 Generous has a lower standard deviation of 3.87224 compared to Grade 7 Considerate which is 4.37292, which explain that most of their scores were close to the average mean. It also showed that

contextualization and localization have a great impact to the learning and performance of the students. Bringas (2014) supported these findings and gave some reminders to the teachers that these teaching strategies can be applied in all learning areas and must be anchored in teaching by using materials and situations which are meaningful to the students' lives and readily available within their locality.

**5.2 Independent Samples Test of Grade 7 Considerate' s and Generous' posttest performances taught in Biology without and with the use of localized and contextualized teaching.**

Table 8. Independent Samples Test of Grade 7 Considerate' s and Generous' posttest performances taught in Biology without and with the use of localized and contextualized teaching

		Equality of Variances (Levene Test)		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Standard Error Difference	Difference's 95% confidence interval	
									Lower	Upper
Scores	Equal variances assumed	.872	.353	-16.404	78	.000	-15.15000	.92353	-16.98862	-13.31138
	Equal variances not assumed			-16.404	77	.000	-15.15000	.92353	-16.98904	-13.31096

Table 8 shows the independent samples of posttest performances of both sections, Grade 7 Considerate and Generous. It revealed in assumed equal variances that the calculated t-value was -16.404 and the p-value for this t-test was 0.000. It means that both posttests were significantly different from each other because the p-value was lower than the alpha value of 0.05. Obviously, Grade 7 Generous' posttest average mean score was 15.15 higher than to Grade 7 Considerate' s score. For the confidence interval, the lower level was -

16.98862, and the upper level was -13.31138, and it does not cross to 0, that means there was a difference. According to the study of Ballesteros (2014) in Localized and Contextualized Science Activities in Improving Student' Academic Performance, there is an improvement in learners' performance in Science after being exposed in localized and contextualized science activities as described in the findings with "proficient" performance level.

### ACTION PLAN

The researcher proposed an action plan based on the results in the abovementioned for the improvement of students' academic performance:

- 1). Attended a seminar/training/workshop in Flexible Resource for Equitable Education Delivery (FREED) Project of City Schools Division of Dasmariñas last April 8 to 12, 2019 to develop a self-paced, localized, contextualized module for junior high school students.
- 2) Developed a localized and contextualized second quarter Grade 7 Science module in Biology as a requirement for the subject (BIOL 240: Biology in Secondary School) in Graduate Studies last May 2019. This module will be evaluated and validated, and the researcher will use this for the thesis next year, and;
- (3). Conducted a seminar /workshop on "Equipping Tutors with Skills and Training for Tutoring Children for an Effective Tutorial Program" at *Bahay Lingkod* Community Center, City of Dasmariñas, Cavite on June 30, 2019, where the researcher encouraged all tutors to integrate localization and contextualization during their class discussions.

### CONCLUSION

The following statements were drawn from the findings of the study:

1. The two sections, one group taught in Biology without the use of localized and contextualized teaching (Considerate) and the other group taught in Biology with the use of localized and contextualized teaching (Generous) performed moderately in the pretest. It showed that Grade 7 Generous performed better than Grade 7 Considerate.
2. The two groups were initially compared based on the results of their pretest. This means that the two sections are heterogeneous at the start of the study and that they were similar in their overall performance.
3. The Grade 7 Considerate taught in Biology without the use of localized and contextualized teaching improved in their posttest results compared to their pretest results.
4. The Grade 7 Generous' posttest performance taught in Biology with the use of localized and contextualized teaching significantly increased.
5. The Grade 7 Considerate' s and Generous' posttest performances were significantly different. The group taught with the use of localized and contextualized teaching improved in performance better than the students taught without the use of localized and contextualized teaching.



## RECOMMENDATIONS

Since the localization and contextualization were found to be effective in teaching Biology of Selected Grade 7 students of Paliparan National High School, S.Y 2018-2019 as manifested in the results abovementioned, the following recommendations were hereby given:

1. Science teachers can create and think strategies which are localized and contextualized that are suitable to the learning needs of the students.
2. Teachers in any subject area should try to integrate localization and contextualization in teaching because it shows a positive effect as regards to the participation, motivation, and attitude of students towards the lessons.
3. Curriculum developers can provide and develop textbooks wherein content and learning activities are real-life situated and materials can be gathered within the local environment.
4. Administrators may conduct seminars or workshops that would train teachers on how to localize and contextualize their lessons that would apply in the teaching-learning process during science class.
5. Future researchers may conduct further study on localization and contextualization approach in learning to test the effectiveness using a bigger sample, other grade level and other fields of Science to verify the results of this study.

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