

**DIGLOSSIC LANGUAGE IN CLASSROOM  
INSTRUCTION: INFLUENCE ON PHYSICS  
ACHIEVEMENT OF STUDENTS**

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**ABSTRACT**

*This study investigated the effects of Diglossic language as medium of instruction in student's physics achievement. It assessed the physics achievement of the students before and after the intervention. It ascertained whether the use of Diglossic language compared to the use of Pure English language had a significant effect on students' achievement in physics. It employed the match-only pretest-posttest group quasi-experimental design using 70 students in a public high school divided into two groups, with 35 students in each group. The diglossic group was taught using the mother tongue and English language (70% mother tongue and 30% English) while Pure English group was taught using English language only. A validated teacher-made achievement test in physics was used to measure the physics achievement level of the students before and after the intervention. Mean and standard deviations were the descriptive statistics employed. The t-test for dependent and independent samples were employed as inferential statistics. Results revealed that students in both Pure English and diglossic groups had low level of achievement in physics before the intervention. The students in Pure English group had an average achievement level in physics, while those in the diglossic group had a high achievement level in physics after the intervention. Results showed that Diglossic language significantly influenced the achievement level of the students. Students taught in Diglossic language gained a higher level of physics achievement and understood better the physics concepts compared to students taught in Pure English language.*

Keywords: Diglossic Language, Classroom instruction, Pure English, Physics Achievement

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## Introduction

In Philippine classrooms, there are underachievers and slow learners which cannot be denied for the right to learn. Some people say that teacher factor is the cause of students' poor performance in the subjects that require analysis, like mathematics and physics [1]. Teachers should play an important role in the attainment of quality and excellent education.

A basic weakness is slowly deteriorating Philippine education. Students perform low in the National Achievement Test given yearly to determine student's proficiency in different subject areas. Many students do not understand what their teachers say and therefore cannot follow the lesson. Why? Because the medium of instruction in school is one they can hardly speak and understand. Nolasco (2008) reported that the results of the national achievement scores in English of the fourth year students from 2003-2007 were at 50-52% level, while the scores in Filipino were even lower [2]. Since these two languages are the media of instruction rapidly used in the classroom, the aforementioned data raise serious doubts about the capacity of high school students to handle content in either English or Filipino.

In July 2009, the Philippines' Department of Education (DepEd) issued Order No. 74, institutionalizing mother tongue-based multilingual education in formal education. Under this framework, the learner's first language (L1) will be used as the main vehicle to teach understanding and mastery of all subject areas like Mathematics, Science, and Makabayan [3].

One of the situation on the use of language in classroom instruction is Diglossic language which is a situation consisting of two varieties of languages that coexists in a speech community. The H domain is highly valued while the L domain is less valued. For diglossic situation consisting of two genetically unrelated languages, the H domain is the language with greater international prestige of the language of the local power elite. The L domain is used for informal conversation, jokes, street and market, and the language of the home [4]. In this study, English is used as the language with international prestige and Hiligaynon is used as the mother tongue.

This study is anchored on the Meaningful Learning Theory posited by David Ausubel which states that learning can be meaningful if learners can be able to relate new information or ideas to what they already know and relatable to the learners' structure of knowledge. This theory of learning has implications on the use of language in the classroom. Meaningful language for the learners boosts learning. Furthermore, learners with much larger native-

language vocabulary can make conscious and deliberate use of grammatical generalizations and can apply them to suitable exemplars [5].

The researcher endeavoured to find out the influence of diglossic language as classroom instruction medium on students' physics achievement. In this study, the independent variables were; (1) the use of Diglossic language in classroom instruction and (2) the use of Pure English language in classroom instruction, and the dependent variable was students' physics achievement. The gFigure below shows the paradigm of the study.

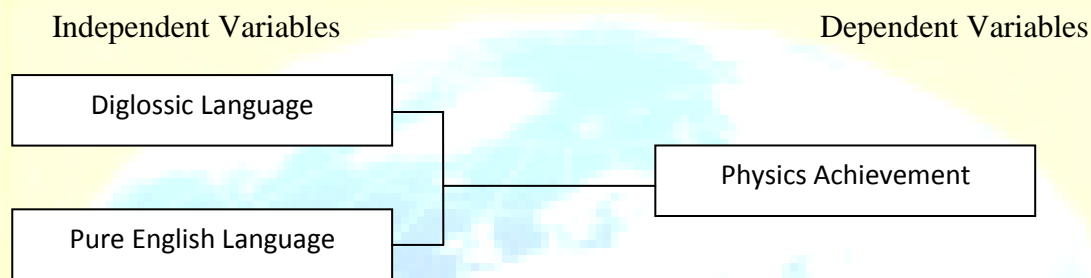


Figure 1. The use of diglossic language in classroom instruction on students' physics achievement.

### Objectives of the study

This study primarily determined the influenced of diglossic language in classroom instruction in enhancing the achievement of students in Physics. Specifically, this study determined the physics achievement of the students before and after the intervention. It also determined the significant difference in the physics achievement of the students before the intervention compared with those not subjected to the same and the significant difference in the physics achievement of the students after the intervention compared with those not subjected to the same. It assessed the significant differences in the pre- and post-intervention physics achievement between students exposed to pure English language and those exposed to diglossic language.

## Methodology

The participants in this study were the fourth year students enrolled in a national high school for the academic year 2011-2012. They were divided into two groups. Of the 35 participants in each group, 20 were males and 15 were females. These students were ranked, and matched-paired according to their average grade in English and Science and Technology during the first grading period. Thirty-five students were assigned to the Pure English group and thirty-five students were assigned to the diglossic group. By tossing of coins, the researcher determined which would be either Pure English or diglossic. The diglossic group was taught using the mother tongue and English language (70 % mother tongue and 30% English) while Pure English group was taught using English language only. The study period lasted for eight weeks to ensure the effectiveness of the intervention made for both groups.

The data-gathering instruments were observation checklist and a teacher-made achievement test in Physics used in the pretest and the posttest covering the topics Pressure and Electricity. Means and standard deviations were the descriptive statistics employed. The t-test for dependent and independent samples were employed as inferential statistics. The significance level for all inferential tests was set at 0.05 level.

## Results and Discussion

To determine the achievement level of the students, an achievement test in Physics was administered to both the Pure English and diglossic groups before and after the intervention.

Table 1 presents the achievement level in Physics of both groups before and after the intervention.

Table 1

Students' Achievement Level in Physics of Pure English and Diglossic Groups.

Group	N	SD	Mean	Description
Pure English				
Pretest	35	3.19	17.94	Low
Posttest	35	3.50	25.34	Average
Diglossic				
Pretest	35	3.53	18.17	Low
Posttest	35	3.30	30.80	High

Students' achievement level before the intervention in Pure English group was low ( $M = 17.94$ ,  $SD = 3.19$ ). The same result was noted for the Diglossic group ( $M = 18.17$ ,  $SD = 3.53$ ). This indicates that the students in both groups were comparable and had the same level of understanding of the topics before they were exposed to the intervention.

After the six weeks of intervention, mean scores of the diglossic groups' achievement level ( $M = 30.80$ ,  $SD = 3.30$ ) was higher compared to the mean scores of the Pure English group ( $M = 25.34$ ,  $SD = 3.50$ ). It shows that the students exposed to diglossic language may have a better understanding of the concepts in Physics. Furthermore, the posttest mean scores showed that the students' achievement level in Physics for Pure English group increased from low to average level and for the diglossic group increased from low to high level. The result supports the study of Dumatog and Dekker (2003) which showed that students taught in the mother tongue performed better in the standardized test results compared to those who were taught in the second language [6].

To determine whether or not significant differences existed between the Pure English and diglossic groups in their achievement level in Physics, the researcher subjected the mean scores in their pretest and posttest to a two-tailed t-test for independent sample set at .05 level.

Table 2 shows the differences in the pretest and posttest mean scores of students' achievement level in Physics between Pure English and Diglossic Groups.

Table 2

Pretest and Posttest Mean Score Results of Students' Achievement Level in Physics of Pure and Diglossic Language

Group	N	Mean	Mean	t-value	df	Sig
		Difference				
Pretest						
Pure English	35	17.94				
Diglossic	35	18.17	0.2286	0.284	68	.777
Posttest						
Pure English	35	25.34				
Diglossic	35	30.80	5.46	6.717*	68	.000

\* $p < .001$

The t-test computation as shown in Table 2 reveals no significant differences in the pretest of students' achievement level between the Pure English and the diglossic groups,  $t(68) = 0.284$ ,  $p = .777$ . This indicates that both groups had the same level of understanding in Physics at the start of the intervention. This also means that the two groups were comparable before the intervention.

After the intervention, the result showed a significant difference in the posttest mean scores between the Pure English and the diglossic groups,  $t(68) = 6.717$ ,  $p = .000$ . This shows that students taught using Diglossic language had higher physics achievement compared to those students taught in pure English language. This agrees with the idea of Monsod (2009), that in child's learning, the mother tongue is not a barrier for learning but instead the most effective medium of instruction because it is her first language and the language spoken at home [7]. Also, as revealed in the investigation of Conde (1998), students receiving instruction in two languages enhanced general performance on standardized tests [8].

To determine whether or not there was a significant difference between the pretest and posttest of students' achievement level in Physics between Pure English and Diglossic groups, the researcher subjected the mean scores to a two-tailed t-test for dependent samples set at .05 level. The results are shown in Table 3.

Table 3

Pretest and Posttest Results of Students' Achievement Level in Physics of Pure and English and Diglossic Groups

Group	N	Mean	Mean Difference	t-value	df	Sig
Pretest						
Pure English	35	17.94				
Diglossic	35	25.34	7.40	8.869*	34	.000
Posttest						
Pure English	35	18.17				
Diglossic	35	30.80	12.63	14.546*	34	.000

\* $p < .001$

The students' achievement level in Physics before and after having been taught using Pure English language was significantly different,  $t(34) = 8.869$ ,  $p = .000$ . The same result was revealed among students having been taught using diglossic language  $t(34) = 14.456$ ,  $p = .000$ . This shows that the two groups significantly learned the concepts of Physics after the intervention, whether taught in Pure English or in diglossic language; however, students taught in diglossic language were significantly different from those in Pure English after the intervention. This means that students taught in diglossic language learned the Physics concepts better.

Furthermore, the findings of this study showed that teaching Physics concepts using diglossic was more interesting than teaching physics using Pure English language. As observed in the classroom, more students actively participated in the discussion and interest was sustained in the class with diglossic language. This implies that teaching-learning activities become more meaningful and effective if this medium is used because students could express their ideas more freely. This conforms with the theory of Pillai (2001), that useful strategy that will be entertaining to the children is the use of the language with which they are familiar [9].

## Conclusions

Students taught using the diglossic language have a high achievement level than those taught in the Pure English language. This means that the former learned better and understood faster the concepts in physics because of the use of the language with which they feel comfortable.

Between the two media of instruction, the students taught in Diglossic language significantly gained better understanding of Physics concepts. This means that such medium is an effective intervention. As observed, students expressed themselves better during class discussion and performed faster in the prescribed activities that led to the attainment of the objectives. Hence, the intervention resulted in more permanent learning.

## Implications for Theory and Practice

The results of the study have led to certain implications for theory and practice in relation to the physics achievement of the students as influenced by the use of diglossic language as a medium of instruction in teaching physics concepts.

**Theory.** The result of the study revealed that diglossic language, which combines the mother tongue and the English language, was proven to be a more effective medium of instruction in the teaching of physics concepts. Students learned faster and understood better, thus leading to a higher level of achievement. The use of the mother tongue in the diglossic language was proven to increase the achievement level of students in the learning of physics concepts for they could express their ideas freely in classroom discussions, resulting in more effective and permanent learning of the concepts.

This agrees with Benson's (2005) idea, that the use of the mother tongue in achieving quality education does not only increase access to skills but also raise the quality of basic education by facilitating classroom interaction and integration of prior knowledge and experiences with new learning [10].

**Practice.** It was found out that diglossic language is an effective medium of instruction in increasing students' achievement in physics. This may imply that the use of diglossic language is encouraged for students to understand better. In teaching, teachers must be more aware of the level of understanding of their students. They must see to it that their students really understand



what they are talking about. Language plays a vital role in classroom discussion for it leads to better understanding of the concepts, resulting in high level of achievement.

### Recommendations

On the basis of the findings and conclusions, the following are suggested and recommended:

1. Since the use of diglossic language as medium of instruction is effective in improving the achievement level of students in physics, it is recommended that such medium be used in teaching, tutoring, and mentoring of Physics, especially of poor performing students.
2. Teachers may use diglossic language for active discussion of Physics concepts.
3. School administrators, should consider the use of diglossic languages as a medium of instruction in their respective institutions. The benefits derived from the study may serve as basis for improving teacher competence, and teaching-learning environment in the classrooms.
4. Future researchers should conduct further investigations on the use of diglossic language on a broader scope or in other subject areas to increase the reliability and validity of the findings. It is further recommended that both groups should be given a posttest using two instructional media.

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