

THE INFLUENCE OF THE ONLINE LESSON STUDY (O-LS) DEVELOPED MODULES ON STUDENTS' ACHIEVEMENT IN ENGLISH

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ABSTRACT: *This quasi-experimental study was undertaken to investigate the influence of the developed modules through the Online Lesson study as Teacher Professional Development Program on students' achievement scores. There were 61 student-participants which were chosen purposively as experimental and control groups. There were 2 research instruments used; the modules developed as outputs of the O-LS TPD program and the teacher-made achievement test. The result of the pretest and post-test were analysed using the mean and standard deviation and one-way analysis of covariance was used to determine the effect of the O-LS study on the students' achievement. Result of the analysis revealed that learners exposed to online lesson study developed modules has significantly higher achievement scores compared to the students from the control group. Based on the findings of the study, it can be concluded that the use of O-LS developed modules is effective in enhancing the learners' English achievement scores. O-LS as TPD is effective in enhancing teachers' professional growth particularly in capacitating teachers' instructional material production, which eventually contribute in increasing the students' achievement. Hence it is recommended to use the developed modules as a primary, augmented or supplementary instructional material for distance learning modality. Mathematics and Science teachers may organize an O-LS to work collaboratively in developing their instructional materials to improve students' achievement.*

Keywords: Distance Learning, Online Lesson Study, O-LS, Learning Activity Sheets, Modules, TPD

1. INTRODUCTION

The 2018 result of the Programme for International Student Assessment (PISA) put the quality of education in the Philippines under the spotlight in 2019. The Department of Education (DepEd) considered it as a wake-up call to all education stakeholders to work together to achieve one common goal: quality education for all learners. DepEd introduced aggressive reforms to globalize the quality of basic education in the Philippines through the launching of "Sulong Edu Kalidad" [1] initiative which focuses on four key reform areas: (1) *K* to 12 Curriculum review and update; (2) Improvement of learning environment (3) Teachers' upskilling and reskilling; and (4) Engagement of stakeholders for support and collaboration (*KITE*).

However, the COVID-19 pandemic resulted in a drastic change in the educational landscape across the world. In the Philippines, the Department of Education (DepEd) allowed the continuation of education through different alternative learning delivery modalities for various types of learners across the country, including modular, television-based, radio-based instruction, blended, and online. With the new learning landscape, the implementation of modular instruction fostered various challenges to teachers, students, and parents [2]. Challenges on the lack of school funding in the production and delivery of modules, students struggle with self-studying on modules, and parents' lack of knowledge to academically guide their children were the most emerging issues according to the study of Dangle & Sumaoang [3]. As a consequence, in Agusan National High School, a decreasing students' performance was observed as reflected from the first and second quarter results of the assessment from their modules and worst there were number of modules returned unanswered.

According to the study conducted by Lapada et al. [4], teachers were highly aware of the presence and consequences of the sudden change of learning modality. With this reason, Dangle and Sumaoang [3] recommended that teachers should re-evaluate the modules, and they

must make sure that all the lessons or activities are appropriate to the needs of the learners. The instructions in every exercise must be clear enough for the learners to understand. The topics must be simplified, and teachers must give more examples. However, re-evaluating and re-designing learning activities are challenging for teachers especially that they are working in isolation at home because of the restriction brought about by the current pandemic. Unlike before that teachers can regularly meet either in formal or informal settings to discuss among their peers their classroom experiences and ideas to improve instructional delivery. As Lansangan [5] noted in his paper, that the value of collaborative actions among teachers, such as sharing of practices and gaining insights from colleagues' experiences, can motivate them to deliver quality education by maximizing the available resources in times of emergency remote teaching. Hence, promoting collaborative activities among teachers through an online Lesson Study (O-LS) as a professional development program could be an appropriate attempt to overcome these challenges. O-LS is a cyclic process of planning lessons and creating or refining learning modules; implementing developed modules; observing modular class management; and reflecting on the implemented process and outcomes. And since the modules were a product of the collaborative planning, implementation, observation, and reflection of the involved teachers, it is then hypothesized that these developed modules may contribute an improvement on the students' achievement. Hence this study, investigate how do the achievement scores of a group of students exposed to the O-LS program developed modules differ with the English achievement scores of the students utilizing the existing DepEd modules.

2. Review of Related Literature

The Impact of Lesson Study on Student Learning and Achievement

Watkins and Biggs [6] claimed that many Chinese and Japanese teachers were more successful at helping students to develop deep subject matter learning and higher order thinking skills than their Western counterparts. Stigler and

Hiebert [7] added that the superiority of Japanese students in international tests can be credited to a particular teacher professional development model: the ‘lesson study’ approach in which Japanese teachers constantly engage with one another to develop their pedagogical knowledge and competence. As the teacher plays a key role in shaping student learning [8; 9; 10], the Japanese lesson study is seen to be a professional development model that leads to better student learning. If this is indeed the case, then engaging teachers in lesson study will help teachers to achieve the goals of educational reforms.

Selezniov [11] found that only 18 of 56 selected studies reported impact on pupil learning or changes to teaching after the period of the lesson study. Nevertheless, large studies have reported positive impacts of lesson study on the quality of learning of pupils with learning difficulties [12] and on attainment of 11-year-old pupils in over 400 underperforming English schools [13]. A randomized trial across 800 schools [14] compared curricular interventions that teachers claimed helped to “close gaps” in learning for disadvantaged pupils (eligible for Pupil Premium payments in England). Their list included Research Lesson Study as a “curricular” intervention and, while none demonstrated an effect size >0.1, it was nevertheless recommended by the study as one of only two showing “promise” for gap-closing on the basis of the results.

The effects on student achievement of the changes in the teachers’ formative classroom practice followed the professional development input [15]. Teachers can influence student achievement, not only directly, but also indirectly via peer effects [16; 17; 18]. The amount of change in the outcome variable (e.g., student achievement) is directly proportional to the change in a context, input, or classroom process variable (e.g. school size, teacher efficacy, quality of instruction, student time-on-task) [19]. The integration of technology into classroom instruction, if appropriately implemented, has strong and positive impact on students’ achievement [20]. Lesson study-based instructional management can be used as a lecturer effort to improve student achievement. Collaboration during lesson planning in lesson study was a significant predictor of student achievement [21].

Student achievement describes students’ mastery of the learned materials which can be seen from the cognitive, psychomotoric, and affective aspects [18]. Learning achievement assesses the students’ understanding of the attributes, functions and relationships between objects, and the objectives of the object-based programming class by asking questions [22]. The role of lecturers in improving student achievement cannot be ignored. The teacher abilities have a negligible impact on average student achievement [17]. That the formation of close, low conflict, teacher–student relationships mediates the relation between effortful control and academic achievement [23].

3. Methodology

3.1 Research Design, Participants and Instruments

This study used quasi-experimental pretest-posttest control group designed to determine the influence of the modules developed as an output of the implemented O-LS as TPD. There were 61 student-participants which were chosen purposively as experimental and control groups. There were two (2) instruments used in the present study, namely: the modules developed as outputs of the O-LS TPD program and the teacher-made English achievement

test. There were five (5) modules developed through O-LS-TPD Program. The teacher-made achievement test included the topics found in fourth quarter English 9. This instrument was used to determine the influence of the modules developed as output from O-LS as TPD program on the students’ achievement. The test was composed of 50 multiple choice items. The 50-item questions were accepted and retained after the item-analysis on the 65-item multiple choice teacher-made achievement test. This test was constructed in accordance with the teachers’ prepared Table of Specification (TOS). The TOS and the constructed achievement test and modules were subjected to face and content validity by 33 English teachers. This test was given to grade 10 students for item analysis and reliability test. Reliability test revealed the Cronbach-alpha = 0.919 coefficient, which means a high level of reliability.

3.2 Data Gathering Procedure

The two sections were assigned randomly as the control group and experimental group. A pretest on Grade 9 English lessons was given to the two groups. The test was answered individually by the student - participants using the google form and hardcopies of the exam. Google Form was used by students who have access to internet while hardcopies were also provided to those who did not have internet access. The O-LS teacher-participants administered the test. After the pretest, the students in the control group were given the conventional self-learning modules which were DepEd-developed and they answered them on their own. They were facilitated by their teacher-adviser who was not part of the O-LS TPD. These students in the control group were also monitored in their learning progress. For the experimental group, the students were facilitated by the English teacher- participants of the O-LS TPD. These students were provided with modules developed through O-LS TPD. They were also monitored in their progress. Modules for both groups were distributed and retrieved weekly.

3.3 Data Analysis

The data that were collected in pretest, posttest in the study was analyzed using the mean and standard deviation. One-way analysis of co-variance was used to determine the effect of the O-LS study on the students’ achievement. The analysis was tested at 0.05 level.

4. RESULTS AND DISCUSSIONS

Table 1. Mean and Standard Deviation of Students’ Achievement Test Scores in English

	Control Group		Experimental Group	
	Pretest	Posttest	Pretest	Posttest
Mean	16.16	23.90	21.10	30.60
Standard Deviation	5.52	5.84	8.38	5.21

**perfect mean score-50*

Table 1 shows the mean and standard deviation of the pretest and posttest scores on the grade 9 students’ achievement test in English. It can be gleaned from the table that the pretest mean of the control group is lower than the experimental group’s score. Though the experimental group gained higher pretest scores as compared to those who belonged to the control group, results still show that both groups’ scores are below the 50% of the perfect mean score. This indicates that students

from both groups had little background in the subject before the experiment was conducted.

In the post-test, the mean of the control group is 23.90 while that of the experimental group is 30.60. The results reveal that both groups have increased their posttest scores indicating that both groups had manifested improvement. However, it is noticeable that the experimental group has higher increase compared to the control group. The 6.7 differences between the posttest means score is greatly attributed to the modules used by the students as their primary instructional materials for distance learning modality, which was developed by the teacher-participants of the O-LS TPD program. These modules were more refined and improved by process undergone by these students who were facilitated by the English teacher-participants of the O-LS TPD. This group of teachers worked together in the lesson planning for English 9 fourth quarter. They brainstormed together and share their proposed activities for the students and their expected result including the distribution procedure.

The pretest standard deviation of the experimental group is also higher than the control group. This means that the experimental group has wider spread compared to the scores of the control group. However, the standard deviation of the control group in the posttest is slightly higher than the experimental group. This means that the students' scores in the control group are more spread than the experimental group. This result reveals that the students' scores from the experimental group are more closely located about the mean 30. 60 indicating that a more consistent and homogenous set of students in terms of achievement in English. To determine whether there is a significant effect of the treatment, the analysis of covariance (ANCOVA) was further used.

Table 2. Summary Table of One-Way Analysis of Covariance on Students' Achievement Scores

Source of Variation	Adj. Sum of Squares	df	Adj. Mean Squares	F Computed	P Value
Treatment Between groups	249.6	1	249.65	13.03	0.001*
Error within	1111.4	58	19.16		
Total	1361.0	59			

*Significant at $p < 0.05$ level

Table 2 shows the result of One-Way Analysis of Covariance of the pretest and posttest scores of the two groups. The analysis yielded an F-ratio of 13.03 with a p-value of 0.001 which is less than 0.05 level of significance. This led to the non-acceptance of the null hypothesis. This means that there is a sufficient evidence to conclude that the achievement scores of the students exposed to the modules developed from the O-LS sessions of teacher-participants is significantly higher than the students who used the conventional DepEd modules. This happened because the students were given a more simplified modules which went through an O-LS process. This implies that the posttest score of the experimental group of 30.60 is significantly higher than the control group of posttest score of 23.90.

The increase in achievement of experimental group supports the study of Fennema, et al. [24] that the better a

teacher understands a topic, the more likely she or he will be able to enhance conceptual understanding that consequently improve student achievement. This is also supported by Stigler and Hiebert [7], that the superiority of Japanese students in international tests can be credited to a particular teacher professional development model: the 'lesson study' approach in which Japanese teachers constantly engage with one another to develop their pedagogical knowledge and competence. In the conduct of the O-LS, teachers discussed thoroughly the lessons in English 9 modules for the fourth quarter. They brainstormed and planned activities suited for the learners to comprehend which were also based on the DepEd standards. This also reiterated the study of Ball and Cohen [25], that knowledge could be increased through a collaborative community of teachers working together to design learning tasks. The O-LS is a professional development program where teachers collaborate in developing modules to supplement, deepen and simplify lessons found in the DepEd Central Office developed modules.

5. CONCLUSION AND RECOMMENDATIONS

Based on the findings of the study, it is concluded that the use of O-LS developed modules is effective in enhancing the learners' achievement scores. O-LS as TPD is effective in enhancing teachers' professional growth, which eventually contribute in increasing the students' achievement. Hence, it is recommended to use the developed modules as a primary, augmented or supplementary instructional material for distance learning modality. Mathematics and Science teachers may organize an O-LS to work collaboratively in developing their instructional materials to improve students' achievement.

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