

## **Modular Distance Approaches and the Learning Competencies of TLE Students in the New Normal Education**

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### **Abstract**

*This experimental study was conducted to determine the effectiveness of modular distance approaches to the learning competencies of TLE students in the new normal education. It sought to describe the problem using the pretest and posttest scores of two experimental groups. The questions and learning activity sheets were made to determine the learning competencies of the respondents. The respondents were the 60 randomly selected Grade 8 students of Camflora National High School. The first group was the 30 respondents utilizing activity-based approach, while the second group with 30 respondents was exposed to problem-based approach. Statistically, the following findings indicated the meaningful difference between the two groups utilizing the two approaches. The respondents exposed in two approaches showed that the respondents' posttest scores apparently improved. In terms of the significant difference between the pretest scores of respondents using the two approaches, the hypothesis is sustained. When tested for a significant difference between the posttest scores of two approaches, there is no significant difference in terms of knowledge and process. However, performance and understanding scores found it significantly different. Therefore, the null hypothesis is partially sustained. Hence, on the test of significant difference on the pretest and posttest scores of respondents utilizing the two approaches all variables are significantly different. Thus, the hypothesis is not sustained. This time of pandemic, new modality can support students' learning. The two approaches are both effective; however, to develop students' higher-order thinking skills, a problem-based approach is more effective.*

Keywords: Modular Distance Approaches, Learning Competencies, Activity-based Approach, Problem-based Approach

### **Introduction**

With the challenges of the "New Normal" the teachers are all gearing up to face another year of changes to ensure the delivery of quality of instruction for the learners. This

clearly explained how DepEd supports the teachers to continue their duties by imparting and transferring knowledge and making the skill meaningful and authentic, to educate and influence learners to be globally competitive and to become a reliable citizen of the country especially in this time of pandemic.

Since face-to-face classes are not yet allowed, the DepEd implemented different learning Delivery Modalities (LDM) that schools can adapt and use (Malipot, 2020). One of the alternative learning modalities for the new normal is modular distance approach, to make sure that learning remains unhampered.

The high school is one of the public schools in San Andres, Quezon that continuously develops competitive students. When the K to 12 Basic Education Program was implemented, the school offered exploratory courses for students depending on the available resources of the community and the needs of the locality. The school is located in one of the remote areas with poor internet connection and mostly students are residing in some barangay with no internet connectivity and with no available gadgets to use. Relating to the aforementioned statements, the administrator conceptualizing the present situation they choose a modular distance approach as the best learning modality that best suited the learner, teachers' parents and all stakeholders' safety.

Additionally, since it is a TLE subject its focus is not only to develop cognitive skills but also to acquire skills as preparation to become productive members of the community. Using a new approach empowering learners and communities to create positive learning environments in which students can grow is possible. With the guidance of their parents or other members of the family and with the assistance from the teacher, the learner will be encouraged to learn at their own pace.

Furthermore, we cannot deny the fact that we have diverse learners with different styles of learning. We need to find out what approaches among activity-based and problem-based drives the students to perform well using new modality that will suit their interest. This paper sought to determine the effects of modular distance approaches and the learning competencies of TLE students in the new normal education.

### **Purpose of the research**

The study's primary goal is to determine the effect of modular distance approaches to the learning competencies of TLE students in the new normal education: 1) Is there a significant difference in the pretest scores of the respondents using the two approaches in terms of: knowledge; process; performance; and understanding? 2. Is there a significant difference in the posttest scores of the respondents using the two approaches in terms of knowledge; process; performance; and understanding? 3. Is there a significant difference

between the pretest and posttest scores of the respondents exposed to activity-based approach and problem-based approach in terms of: knowledge; process; performance; and understanding?

### **Methodology**

This study used the experimental design to describe the condition of the problem in detail. It includes summarizing, organizing and presenting data into tables and figures. This study was conducted according to the pretest and posttest of two experimental groups. The two experimental groups were established in this research and the measurements were made to assess modular distance approaches using activity-based approach and problem-based approach before and after the experiment in both groups.

### **Participants of the study**

To select the respondents, random sampling was used. The respondents of the study were the sixty (60) Grade 8 students enrolled this school year 2020-2021 in Camflora National High School, San Andres, Quezon. The thirty (30) students were exposed to an activity-based approach and the other 30 students were exposed to a problem-based approach.

### **Research instruments**

The study used experimental design, where pretest and posttest was given to both experimental groups. The first group used an activity-based approach, while the second group were exposed to a problem-based approach. Pretest was administered before the lesson started prior to the treatment. The scores from the pretest were used to see the initial ability of both groups were similar before conducting the treatment. On the other hand, the scores from posttest were used to measure whether the implemented modular distance approaches activity-based learning and problem-based approach influence both experimental groups or not.

### **Data analysis**

The following treatment in the analysis and interpretation of data was used. The percentage, weighted mean, frequency and Standard Deviation were used to provide description of the respondent's pretest and posttest scores. For a test of difference t-test was applied for an independent sample. For analysis and interpretation of data, alpha .05 was used to determine the significance of the variables.

### **Ethical consideration**

A letter of endorsement to the Principal of Camflora National High School, the study site, was secured. Then the approved letter was presented to the principal of Camflora

National High School. The learning Activity Sheets (Problem-based and Activity-based) made by the researcher were personally distributed and retrieved together with the pretest and posttest to and from the parents of the respondents.

## Results and Discussion

**Table 1.** Pretest scores of the Respondents Using Activity-Based Approach and Problem-Based Approach

Learning Competencies	Activity-based		Problem-based		t	df	Sig. (2-tailed)	Mean Difference	95% CID		Interpretation
	Mean	SD	Mean	SD					L	U	
Process	5.27	2.10	4.77	2.08	.927	58	.358	.50	-.58	1.58	Not Significant
Product	5.93	1.91	5.83	1.05	.251	58	.803	.10	-.70	.90	Not significant
Understanding	6.13	1.96	6.70	1.95	-1.12	58	.266	-.57	-1.58	.44	Not significant

The findings demonstrated in Table 1 denote the difference of the pretest scores of the respondents using activity-based approach and problem-based approach. The table revealed that in terms of knowledge, process, performance and understanding all the corresponding two-tailed values are greater than 0.05. We conclude that, in terms of all variables, there is no significant difference between the pretest scores of the respondents using activity-based approach and problem-based approach.

**Table 2.** Posttest Scores of the Respondents Using Activity-Based Approach and Problem-Based Approach

Learning Competencies	Activity-base		Problem-base		t	df	Sig. (2-tailed)	Mean Difference	95% CID		Interpretation
	Mean	SD	Mean	SD					L	U	
Process	7.17	1.66	7.77	1.43	-1.498	58	0.14	-0.6	-1.4	0.2	Not Significant
Performance	7.83	1.56	9.07	1.26	-3.377	58	0.001	-1.23	-1.96	-0.5	Significant
Understanding	8.03	1.43	9	1.05	-2.989	58	0.004	-0.97	-1.61	-0.32	Significant

Table 2 presents the difference between the posttest scores of the respondents using activity-based approach and problem-based approach. In terms of knowledge and process the table showed that the corresponding two-tailed value of the two variables are greater than 0.05, which means that in terms of knowledge and process there is no significant difference between the posttest scores of the respondents after being exposed in learning activity sheets of activity-based approach and problem-based approach.

However, in terms of performance, respondents in activity-based approach got a mean of 7.83, while respondents of problem-based approach in performance got a mean of 9.07, it has a corresponding two-tailed value of 0.001. While the respondents exposed an activity-based approach in terms of "Understanding" got a mean of 8.03. On the other hand, respondents exposed in problem-based approach got a mean of 9.00 and "Understanding" got a corresponding two-tailed value of 0.004. The corresponding two-tailed value of performance 0.001 and understanding 0.004 explained that there is a significant difference between the posttest scores of the respondents using activity-based approach and problem-based approach.

As presented in the table, it showed that the means obtained by the respondents exposed in problem-based approach are higher than the mean of the respondents exposed in activity-based approach which means that the respondents in problem-based approach perform and understand the lesson better. The performance task of students such as real application, producing or creating something even the situational problem given was useful. The students develop lifelong learning and higher-order thinking skills. As cited in the article written by Cotton (2011), the benefit of problem-based learning to secondary education will foster analytical thinking skills of students. Thus, authentic assessment provides students an opportunity to learn skills that can directly apply to the environment, including the workplace. Modular distance using a problem-based approach is effective.

This result is supported by the study conducted by Abude (2021). Modular distance has a positive effect on students' new way of learning. It fulfills the diversified needs of students of all levels. Students learn at their own pace and promote positive changes in teachers teaching style.

**Table 3.** Pretest and posttest Scores of the Respondents Exposed to Activity-Based Approach.

Learning competencies	Pretest		posttest		t	df	Sig. (2-tailed)	Interpretation
	Mean	SD	Mean	SD				
Knowledge	7.7	1.51	9.57	0.82	-8.351	29	.000	Significant
Process	5.27	2.1	7.17	1.66	-9.009	29	.000	Significant
Performance	5.93	1.91	7.83	1.56	-7.193	29	.000	Significant
Understanding	6.13	1.96	8.03	1.43	-6.089	29	.000	Significant

Table 3 provides details about the difference between the pretest and posttest scores of the respondents exposed to activity-based approach. The table presents that all variables of learning competencies have a corresponding two-tailed value which is less than 0.05. The findings indicated a *significant difference* between the pretest score and the posttest scores of the respondents exposed to activity-based approach. In the study conducted by Anwer (2019), it was found out that using activity-based approaches increases students' motivation and academic achievement. The study also showed that the majority of the students found activity-based learning to be more effective and interesting wherein, it will be proved that the more senses are stimulated, the better and the longer a person learns. It was asserted with this literature that a high-quality self-learning material or module should contain sufficient activities to stimulate students to study constantly (Torrefranca, 2017). Furthermore, the study conducted by Lagura (2016) revealed that students gained knowledge and skills when they are subjected to different activity-based learning modalities. Many of the students increased the total scores from pretest to posttest.

**Table 4.** Pretest and posttest Scores of the Respondents Exposed to Problem-Based Approach

Learning Competencies	Pretest		posttest		t	df	Sig. (2-tailed)	Interpretation
	Mean	SD	Mean	SD				
Knowledge	7.2	1.77	9.5	0.73	-9.206	29	.000	Significant
Process	4.77	2.08	7.77	1.43	-8.677	29	.000	Significant
Performance	5.83	1.05	9.07	1.26	-13.307	29	.000	Significant
Understanding	6.7	1.95	9.0	1.05	-6.345	29	.000	Significant

Table 4 posted the difference between the pretest and posttest scores of the respondents exposed to a problem-based approach. All variables got a corresponding two-tailed value which is less than 0.05. It shows that the pretest scores and posttest scores of the respondents exposed to problem-based approach are significantly different. As presented in the table above, the students were able to improve their scores in the posttest and learned the lesson about electrical installation and maintenance using learning activity sheets of problem-based approach.

This finding is being supported by the literature of Kurt (2020). According to him, problem-based learning can also sharpen students' critical thinking skills and problem-solving abilities essential to life-long learning.

Furthermore, in the study conducted by Herrera (2011), students exposed in problem-based instruction performed better than the activity method. The study conducted by De Wet and Walker (2013) showed that the majority of students were in favor of problem-based learning, which is based on making applications of theory into practical situations. The study concluded that students benefited from problem-based learning in that they thought they had improved their knowledge skills and critical thinking abilities and felt that they had learned things that they could carry into their future lives out in the world at large and the workplace.

## **Conclusion**

The aims of this study were to determine the effect of modular distance approaches to the learning competencies of TLE students in the new normal education. Modular approaches such as activity-based and problem-based with the help of learning activity sheets could be used in this time of pandemic.

The learning competencies of the respondents in electrical installation and maintenance exposed in activity-based approach and problem-based approach in terms of knowledge, process, performance and understanding showed that most of the respondents got the lowest score in the pretest but in the posttest apparently their scores improved and much better than the pretest. It suggests that the students learned more after being exposed in learning activity sheets.

It can support students' learning and promote effective learning as well. Moreover, this study's posttest result proved that the students are highly motivated to learn because of the learning activity sheets that they utilized. In developing students' higher-order thinking skills, however, a problem-based approach is more effective than an activity-based approach.

## Recommendations

Based on the conclusions of the study, the following recommendations are highly proposed:

1. Considering modular distance was an effective approach to use in this time of pandemic, teachers may choose either between activity-based approach and problem-based approach to those schools located in remote areas to encourage and enhance the interest of the students in learning while using the new modality.
2. Because it was found that the students exposed in problem-based approach perform and understand better the lesson about electrical installation and maintenance than the students utilizing activity-based approach through the use of performance task and situational problem given, teachers may utilize this approach to develop students' lifelong learning and higher order thinking skills.
3. Since the use of learning activity sheets was found to be enjoyed by the students in learning TLE competencies in terms of knowledge, process, performance and understanding in the new normal education, future researchers may also conduct further research about strategies that can also be applied in modular distance approach.

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