

## DEVELOPMENT AND UTILIZATION OF LOCALIZED INFOGRAPHICS IN PRACTICAL RESEARCH II AT BIÑAN CITY SENIOR HIGH SCHOOL – SAN ANTONIO CAMPUS



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### ABSTRACT

The pandemic has brought the most challenging tasks in history where teachers are forced to immediately adapt to the drastic change of the educational system. However, the historical experiences give an opportunity of developing a new normal instructional material for 21<sup>st</sup>-century learners. It is a set of infographics in Practical Research 2 based on the least mastered competencies of the students.

The action research aimed to determine the level of achievement of Grade 12 students in Practical Research II at Binan City Senior High School – San Antonio Campus, the factors affecting the achievement, the perceptions of the students toward the utilization of infographics, and the significant difference between the pre-test and post-test on the utilization of infographics?

The researchers primarily used **quasi-experimental research** specifically a **single-group interrupted time-series design**, in determining the improvement of the students' academic performance after administering the intervention. Then, a t-test of correlated means was applied. To identify academic achievement, factors affecting the students' performance, and perceptions toward the use of infographics, the proponents employed the Likert Scale questionnaire and analyzed the data with descriptive statistics.

The researchers found out an average level of achievement of Grade 12 students in Practical Research II and learners were affected by various factors such as study habits and factors related to personal, teacher, and school operations.

The students perceived that the utilization of infographics simplified the complex lessons, increased interest in the lesson, helped them easily compare the difficult terms, served as a one-stop-shop of concept, supported them generalize the lesson, and effective teacher-made learning tool. On the other hand, the t-test computed value (-8.92, -3.77, -3.21) revealed that there was a significant difference between the Pre-Tests and Post-Tests. Therefore, the use of infographics was effective.

This action research on the development and utilization of localized infographics in Practical Research II helped the school administration and teachers in ensuring the quality of teaching and learning process in the distance modality.

## INTRODUCTION

Practical Research II that focuses on quantitative research, in Senior High School has been dubbed by students as boring, complex, and terrifying because of the requirements and highly technical lessons. The research subject mostly entails technical writing and reading long and massive related literature. Then, the teachers observed that these attitudes of the students toward the subject affect their performance. Also, the complexity of the course breeds a lack of interest which leads to poor performance.

And as 21<sup>st</sup>-century education marks the digital age in the system that necessitates digital age learning with the demands on the utilization of visually appealing lesson materials, there is an urgent need to develop instructional resources that will keep abreast of this kind of pressure. Its development for 21<sup>st</sup>-century learners, who are famously tagged as 'digital citizens', is a tool to improve student achievement by primarily targeting their senses. However, this becomes more challenging because of the unpredicted phenomenon that slows down the school's operations.

The mode of learning delivery with limited resources brings students in a more difficult process of learning especially dependent learners. It will more hinder their enthusiasm to study which can be directly linked to their academic performance. Indeed, the new normal education worsens the long-time challenge in the education sector, the student's achievement.

In a news article written by Ratziel San Juan of PhilStar Global in December 2019, the Philippines ranked the bottom in reading comprehension in the 2018 Programme for International Student Assessment (PISA).

The news article explains that the country scored an average reading score of 340 that is more than 200 points below China as the leading country in the rank of mathematics and science.

Also, another report of CNN Philippines on December 10, 2020, states that the Philippines graded the lowest in the 2019 Trends in International Mathematics and Science Study (TIMSS).

The PISA and TIMSS results may get even worse not only to the reading proficiency, mathematics, and science-related skills of the students but also to their whole academic accomplishment. The researcher, therefore, aims to develop infographics as a new normal instructional material to improve student achievement in Practical Research 2. The researcher's design of infographics will also help address the demands of 21<sup>st</sup>-century students.

The bottom rank of the country leads the education department to strengthen the drive of improving the quality of education as explained in the **DepEd Order No. 12, s. 2020, known as Adoption of the Basic Education Learning Continuity Plan (BE-LCP) for School Year 2020-2021 in the Light of the Covid-19 Public Health Emergency**. It highlights one of its principles in ensuring learning continuity through K-12 curriculum adjustments, alignment of learning materials, deployment of multiple learning delivery modalities, and other relevant concerns in delivering prime education.

Also, DepEd CALABARZON supports the BE-LCP through its implementation of **Pivot 4A QuBE** with its goals to achieve "The Power of E" --- Excellence, Empowerment, and Efficiency while the Division of Biñan aligns its policies and procedures in curriculum and learning delivery. Moreover, the city division collaborates with Biñan Radio Station as its regular partner in Radio-Based Instruction (RBI) in promoting the development of reading skills to the learners in primary levels.

The low performance of the country in the academe pushes the proponents to help the school in improving its learning and curriculum delivery. It is the primary reason for developing and utilizing the infographics in Practical Research II.

Mark Smiciklas (2012) defines infographics in his E-Book as “a visualization of data or ideas that tries to convey complex information to an audience in a manner that can be quickly consumed and easily understood.”

Moreover, “an infographic is a composition of concise explanatory text and visual representations that are blended to convey a story-like message that is attractive and easy to understand” (Noura Shabak Alrwele, 2017).

## METHODOLOGY

The researchers used **quasi-experimental research**, a non-randomized quantitative design, to determine the improvement of the students' academic achievement after administering the intervention. Quasi-experiments are utilized for a “researcher who has only partial (or no) control over randomly assigning participants to levels of a manipulated variable of interest (Creswell & Creswell 2018). This design is commonly used in action research especially in the field of education and psychology.

Specifically, the proponents used a **single-group interrupted time-series design** which Creswell and Creswell (2018) defines as a design that is best appropriate for the researcher that records measures for a single group, which is only the experimental, both before and after treatment.

The level of academic achievement of the students was defined based on the First Quarter Grades while the influencing factors and perceptions were identified through a Likert Scale questionnaire that will be treated with descriptive statistics.

The researchers developed and utilized diagnostic tests, in identifying the least mastered skills of the students in Practical Research II, pretest, and post-test to determine the improvement of students' academic achievement in Practical Research II after using the infographics. To determine the reliability and credibility of the results, the

proponents gave a questionnaire form to determine the perceptions of students on the impact of infographics on their performance.

To determine the affecting factors to the academic achievement of students in Practical Research II, the proponents employed the Likert Scale that is a common type of rating scale questionnaire.

To analyze the data, the researcher listed down the following steps:

**Step 1.** Summarizing and tabulating the data yielded from pretests, post-tests, and questionnaire

**Step 2.** Utilize the following statistical treatment:

**Frequency Distribution** – is an overview of all distinct values in some variable and the number of times they occur

**Arithmetic Mean** – is the sum of a list of numbers divided by the number of items on the list

**Standard Deviation** – is the measure of the spread of data around the mean

**T-Test of Correlated Means** – is used to test if the difference of means is statistically significant

**Step 3.** Using line graphs for baseline and treatment observations for abscissa units of time and the ordinate target behavior.

**Step 4.** Interpretation and Analysis

**Step 5.** Write the conclusions and recommendations

**Step 6.** Report the result of the research

## RESULTS

In the analysis of the data, the researchers found out that there was a significant difference between the Pre-Tests and Post-Tests, conducted three times. The mean difference, a variance of mean difference, and t-computed value were computed.

The t-computed values, **-8.92**, **-3.77**, **-3.21**, in the first to third administrations of the tests, were higher than the t-tabular value, **-1.699**. The figures indicated that the results of the Post-Tests are higher than the Pre-Tests.

The null hypothesis was rejected. Therefore, there was a significant difference between the Pre-Tests and Post-Tests, or the use of infographics was effective.

The researchers obtained an average level of achievement of Grade 12 students in Practical Research II.

The findings revealed that students were affected by various factors such as study habits and factors related to personal, teacher, and school operations.

The students perceived that the utilization of infographics simplified the complex lessons, increased interest in the lesson, helped them easily compare the difficult terms, served as a one-stop-shop of concept, and supported them generalize the lesson.

Moreover, the infographics helped them better understand the lesson, served as an effective reviewer, and aided them to remember the lesson. Lastly, the learners agreed that the graphically interesting supplementary materials were better than linear texts and effective teacher-made learning tools.

## **DISCUSSION**

All subject teachers should utilize the localized infographics in Practical Research II as supplementary materials aside from the Self-Learning Modules (SLMs) to improve the level of academic achievement of students.

Because the utilization of infographics has been proven effective, the teachers may develop graphically appealing learning materials to alleviate the student's struggles especially to dominantly visual literacy skilled learners.

The teachers and school leaders may recognize and anchor the programs, projects, and activities to the factors affecting the performance of the students.

Future researchers may use this study as the basis for relevant research

endeavors that would ensure the quality of teaching and learning process as one of the key dimensions in the School Learning Continuity Plan (SLCP).

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