EFFECTIVENESS OF DEVELOPED WORKSHEETS TO THE ACADEMIC ACHIEVEMENT OF STUDENTS IN SCIENCE 9 CONCEPTS

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ABSTRACT

The study was carried out to evaluate the effectiveness of developed worksheets as an instructional material for teaching specific concepts in science 9. In particular, the aim of the study is to analyze the evaluation ratings of the worksheets produced and the effect of its implementation. It also examines the significant difference between the respondents' academic performances when supported by the developed worksheets. The primary instrument of the study is a standardized evaluation tool for printed materials from the Department of Education, Learning Resources Management and Development System (LRMDS) Office. Results showed that the validated worksheets are identified as appropriate and commendable by the validators. The achievement performance of the respondents has improved substantially. There is a significant difference between the students' academic achievement using established worksheets compared to conventional approaches. In teaching Science 9 concepts, the developed worksheets are appropriate to use as a material and greatly enhanced the students' efficiency.

KEYWORDS: Worksheets; Science 9 Concepts; Academic Achievement

I. INTRODUCTION

Science Education Excellence has long been recognized as a measure of global competitiveness. Developing one's teaching material is an important element to being a successful teacher, as reported by Adipo (2015). The teaching effectiveness of the teacher and the learning of the student is often based on the instructional materials (IMs) used. Muzumdar (2016) noted that there are numerous studies supporting the claim that IMs influence the learning of students. Traditional teaching approaches, according to Özdemir (2010), have a negative impact on the teaching process, particularly in the development of the scientific process skills of students. Suparman (2014) mentioned that worksheets as an educational tool, had proven its usefulness in teaching science concepts, where many claims had made it a productive instrument for providing enjoyment, good motivational activity, learning atmosphere and improving understanding in a non-threatening manner.

Teachers are continuously in the quest for developing new resources to enhance learning in delivering concepts of science. One of these approaches involves the use of non-electronic resources such as worksheets. Azar (2013) emphasized that as a method of teaching science, the Modular Worksheet (MW) approach is the starting point and basis for the development of all critical thinking skills. As tasks were provided with varying degrees of difficulty after the discussion of science principles, the instructional material is a worksheet. Adora (2014) opined that one way of maintaining the interest of the learners is to provide them with activities which they could perform individually after being given the proper guidance, instruction as a teaching tool such as worksheets or module which could make learning interesting.

Notions of Raymond (2000), Torrefranca (2017) and Azar (2013) indicated that worksheets, as a teaching support material, describe the role of teachers as one who encourages the growth of students and offers a facilitative mechanism enabling them to move beyond what they can do. Thereby stimulates the learners to fully execute the activities in order to achieve the learning objectives. Moreover, Vergara (2017) considered the efficacy and acceptability of the learning worksheet, which in his analysis showed a high composite mean that leads to agreeable quality of educational materials.

The researchers tried to fill the gaps by promoting additional concept about worksheets as a productive method to improve the performance of students in a particular concept in science 9 with the current situation and developed worksheet theories as instructional tools. The study also provided an assessment of the effectiveness of the worksheets created, its influence on the pretest and posttest performance of the students.

II. METHODOLOGY

The study used the "design and development" and quasi experimental approach. The "design and development" method was utilized aiming to develop an instructional materials based on an existing theory and get feedback from the performance of students in a particular of research adapted from the study conducted by the Institute of Education Science [IES] (2013) and Özdemir (2016). Also, in measuring the effectiveness of the developed worksheets, quasi experimental scheme was applied. The study has undergone two main Stages. Stage 1 focuses on the evaluation of the developed worksheets by the expert-evaluators from the Department of Education using standardized evaluation tool for printable materials. Stage 2 was focused on the determining the respondents' pretest and posttest performance through the aid of developed worksheets.

III. RESULT

Table 1. Summary Table of the Evaluation Rating of Comic Strips

Area of Assessment	WM	Description
Factor 1: Content	3.90	Very Satisfactory
Factor 2: Format	3.86	Very Satisfactory
Factor 3: Presentation and Organization	3.92	Very Satisfactory
Factor 4: Accuracy and Up-to-datedness of	3.88	Very Satisfactory
Overall Mean	3.89	Very Satisfactory

Table 2. Mean Scores and Standard Deviation value of the Pretest and Posttest

Traditional Legend: 4.00-3.1- Very Satisfactory (VS), 3.00-2.1- Satisfactory (S), 2.00-1.1- Fair, 1.00-Poor				Using Developed Worksheet			
Pre-test		Post-test		Pre -test		Post test	
Mean	SD	Mean	SD	Mean	SD	Mean	SD
7.4	**2.47**	**9.03**	**2.95**	**8.47**	**1.91**	**12.92**	**2.68**

Table 3. T-test for Equality Means

Academic Performance	F-value	p-value	Decision	Conclusion
Control Group	.40	.000	Reject Null Hypothesis	Significant
Experimental Group				

IV. DISCUSSION

The worksheet was evaluated by different experts using the valuation rating sheet provided by the DepEd-Learning Resource and Development System Office, Division of Surigao del Sur, to assess its effectiveness in terms of content, format, presentation and organization, accuracy and up-to-datedness. Based on the results of the assessment (Ref. Table 1), all products with an average weighted mean of 3.89 are considered to be very satisfactory. The findings indicate that the worksheets produced are sufficient for the level of development of the learner, contribute to the achievement of specific goals, are free of biases and prejudices, promote the growth of creativity and innovation, communication, teamwork, competitiveness, accountability, leadership and responsibility. The overall assessment of its effectiveness showed that the worksheet is highly accessible as an established instructional material in the teaching of basic science 9 concepts. The worksheets have a high degree of acceptability and effectiveness, the expert-evaluators concluded. In a specific definition, the experts considered the content as possible instructional materials to improve the performance of learners.

The pre-test and post-test mean scores of the student respondents and the significant difference in their performance were shown in Tables 2 and 3. The findings showed that the group of students assisted by the worksheets generated performed better than those in the control group. The improvement in their

mean score is an indicator that all the tasks given to them are actually understood and performed well by the students. They demonstrated ultimate interest in the presented concept of science. The findings are reinforced by Estacio (2015) ideas that worksheet facilitates positive classroom engagements and demonstrates a cognitive capacity for the motivation and retention purposes of students. It also agrees with numerous statements from various studies by Naval's (2014) and Aggabao (2014) that worksheets have been found to be successful in the acquisition of information. Therefore, this research indicates that the worksheets produced can be a valuable tool for teaching and studying the concepts of basic science. The findings also show that with the use of the established worksheets and the conventional teaching approach, there is a significant difference between the pre-test and post-test results of the respondents in the teaching science 9 concepts. The result is also supported by the Erkus '(2017) report, which notes that the use of visual and text style presentation gives worksheets the opportunity to get away from conventional classroom delivery modes using traditional method of teaching.

CONCLUSION

Based on the results of the analysis, the researchers concluded that the worksheets produced were successful in teaching basic science 9 concepts as instructional materials. Experts firmly agreed that the instructional content for use in the classroom environment is appropriate and commendable. In addition, the students were able to appreciate the topic in an interesting way through the developed worksheets as the result of increase in their performance. The use of the worksheets produced has served as a good tool as an instructional material. Future research on the creation of another instrument or collection of worksheets is encourage to reinforced in teaching various fields of science and across different disciplines at different grade levels.

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