



COMPREHENSION ENHANCER ACTIVITY BOOKLET AS INNOVATIVE INSTRUCTIONAL MATERIAL IN TEACHING CHEMISTRY 8

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ABSTRACT

This study was entitled Comprehension Enhancer Activity Booklet as Innovative Instructional Material in Teaching Chemistry 8. The school where the researcher is teaching been the place used for the gathering of data, Gov. Felicisimo T. San Luis Integrated Senior High School. The respondents of the study were ten (10) Science teachers who validated the CEAB. This study was conducted during the Third Quarter of the School-Year 2020-2021. The researcher used input, process and output which represents the relationship among the variables used in the study. The input includes the selected topics in Chemistry 8, the process including the acceptability and validation of the CEAB as innovative instructional material in teaching Chemistry 8. And the output of the study is the CEAB as innovative instructional material in teaching Chemistry 8. The study is limited to the assessment whether the use of intervention materials is effective as an input.

The level of acceptability and the difference between the pre-test and post-test mean scores with the use of comprehension enhancer activity booklet as innovative instructional material is investigated by this research. Descriptive method was used in this study to be able to answer the hypothesis based from what was observed. A survey questionnaire was utilized to gather data in determining the relationship of CEAB utilized by the teachers and third quarterly academic performance of the students. Teachers perceived that the use CEAB as innovative instructional material such as activities, content, creativity, design were very affective and these help them to enhance the performance in Chemistry 8 and they benefited from using comprehension enhancer activity booklet as innovative instructional material to easily understand the lesson. Moreover, there was a significant difference on the grade 8 students pre-test and post-test mean scores with the use of instructional material at 0.05 level of significance. It was recommended this research could also be used in other schools to further observe the importance enhancer activity booklet as innovative instructional material in teaching chemistry. This can make the researcher's study more reliable as a larger population would allow for a better generalization of the data.

Finally, feedbacks received should be take into consideration to determine the progress of the researchers in achieving their objectives. Shifting the study's focus to interventions that rely on proactive approaches to resolve the issues will be a great follow-up for this study.

INDEX TERMS— *academic achievement, innovative instructional material, activities, content, creativity and design*

1 INTRODUCTION

Teachers and students alike have been shocked by the potential impact on teaching and learning only a few months after the pandemic was announced. Digital and online delivery modes, mixed or versatile delivery modes, synchronous or asynchronous delivery modes, or a mixture of all these alternative delivery modes of teaching have largely replaced conventional face-to-face training. As a result of the college's survey, the online interactive method of teaching and learning has been used from the start. The issues surfaced about a month after it was introduced. The students became aware of the financial costs associated with the holding of online or virtual classes, such as the need to purchase a laptop or desktop, or an Android phone as well as a good internet connection, in order to fulfill the requirements for virtual or online classes. Teachers are

affected by the difficulties that students face. It's also evident that the pandemic had an effect on teachers' and students' teaching and learning practices. Teaching at any level requires that the students be exposed to some form of stimulation or intervention to improve learners' academic achievement, Abad (2015). Okobia (2016) noted that teaching resources means anything that can assist the teacher in promoting 21 teaching and learning. When the students are given the chance to learn through more senses than one, they can learn faster and easier. This, in turn, serves as a challenge to all educators to improve the teaching-learning process especially in science Hence, strategic intervention must be implemented to develop students' interest and progress level of achievement.

Bunagan (2019) defined Innovative Instructional Material as



meant to teach the concepts and skills. It is a material given to students to help master competency-based skills during the teaching-learning process. It consists of both learning strategies (for students) and content enhancement (for teachers). It is a multifaceted approach to help students to become independent and successful learners, Okobia (2016). Hence, it is intended as an intervention to facilitate better learning topics in Chemistry class.

At present, in the Philippine education system, intervention materials are highly regarded as tools to enhance the achievements of the learners. It refers to a teaching aid introduced into the teaching methods to stimulate the activity of the students and thereby increase their level of understanding (Dy, 2017).

In line with the above discussion, the general goal of innovative instructional material delivery is to ensure that students are acquiring knowledge and skills that are deemed essential for their success in basic education learning in science. In this study, the researcher focuses on learning chemistry among grade 8 learners in Gov. Felicisimo T. San Luis Integrated Senior High School.

Thus, the researcher is encouraged to conduct a study in relation to comprehension enhancer activity booklet as innovative instructional material in teaching chemistry 8 with great assurance that its findings will surely benefit the learners develop understanding of the concepts in chemistry.

2 OBJECTIVES

The main objectives of the study is to determine the level of acceptability and effectiveness on the use of comprehension enhancer activity booklet as innovative instructional material in teaching Chemistry among Grade 8 students in Gov. F.T. San Luis Integrated Senior High School

Specifically, this research aims to know the level of acceptability of the comprehension enhancer activity booklet as innovative instructional material in terms of activities, content, creativity and design, to know the mean level of learners' performance of comprehension activity booklet as innovative instructional material in terms of pre test and post test, and to know if there is a significant difference on the grade 8 students pre-test and post-test mean scores with the use of comprehension enhancer activity booklet as innovative instructional material.

3. METHODOLOGY

It utilized descriptive research design through researcher survey questionnaires. It used as the major instrument for gathering the needed data through conducting survey. This method of research aimed to describe and interpret the perception of the teachers to different teaching strategies and to assess if the learning material using CEAB as innovative instructional material could affect to the students' academic performance. This research also employed the t-test which is a statistical formula that measures the strength between variables and relationship. Since the study will be concerned in numerical variables and correlational. Variables were associated to the relationship of the students' academic performance to CEAB innovative instructional material used by teachers.

In addition, one group pretest/posttest research design will be used in the study to determine the effect and validity of comprehension enhancer activity booklet as innovative instructional material in studying chemistry topics. This design will be used to find out whether the use of comprehension enhancer activity booklet will be effective based on the results of the pre-test and post-test to

be given.

4. LITERATURE REVIEW

According to a Seal, J. (2013), a key challenge for schools is to provide motivators beyond those gained by the award of marks. Student engagement is essential for learning - even the best teacher cannot succeed without it. It describes the evaluation of an innovative year-long module for mechanical engineering students that embraces competitive challenges, student-centered learning activities, problem solving, creative design and skills workshops that was designed to sit alongside and provide motivators for a broadly traditional first year curriculum.

Mondal and Majumder (2020). further explain that the prospective teachers conduct an interview with one student in their practicum classroom in an effort to become more familiar with the student's activities and interests, the student's home and community knowledge base and home and community resources. Knowledge gained from this interview can be used to inform the Community Walk activity in the Community Mathematics Exploration Module.

Hedin (2019) said that the way to increase productive time is to make students learn "study skills." Hattie et al. showed in a meta-analysis that study skill intervention programs in general work most of the time. Especially, having many study skills and being able to choose the ones suitable for a specific situation has positive outcomes. Their results also support that training should "promote a high degree of learner activities and metacognitive awareness." However, individual study skills in themselves cannot in general be said to be effective, since what is an effective strategy in one domain can be ineffective in another.

The above literature coincides with the present study as it explains the importance of including activities on the education tool for students so that they can better understand the lesson.

Another variable included in this research is innovative strategic material's content. This is one of the most important things to consider in making innovative instructional materials

According to Danielson J. (2014) existed, they have been used for teaching. However, only in the past decade has it become routine to capture audio and video from traditional classroom lectures and automatically make those recordings available to enrolled students. These captured lectures vary in nature from relatively sophisticated video and audio productions to simple audio recordings that accompany a separate file containing presentation slides. The wide variations in lecture-capture technologies and implementation strategies have precipitated diverse studies examining lecture capture, with a variety of results. These focused on studies in post-secondary settings that used captured lectures as an adjunct to face-to-face instruction, so as to be comparable to the setting in which the present studies occurred.

African Literature Review (2020) also said content, as earlier on described, refers to what is expressed in a literary piece of work. It necessarily constitutes the message which the author wishes to pass on to an audience. The message communicated by an author in a literary piece of writing most often consists of themes.

Abbasi, K. et al. (2013), there are two general patterns in the education programs: The teacher-centered pattern, which focus on the teacher and based on the lecture, students learn the subjects soon and often forget them soon. Lecturing depends on the student being a verbal learner in that information must be understood as it is stated. Even with a power point listing of information, the shelf life



of information passed on this way will not be remembered for long. The other pattern, which considers the student's needs and capabilities is the student-centered pattern. For everyone, learning through the lectures during a period of time is inevitable; however, Revision of the traditional teaching methods, such as lectures and the use of a student-centered approach is necessary. Therefore, the educational systems have emphasized reconsideration of traditional education methods and development of new educational approaches.

IT support (2019) Instructional content is static content intended to introduce concepts to the learner. This may consist of blocks on the course pages, reading assignments from the course textbook(s), uploaded documents, external links, or rich media stored on our Kultura site. When choosing content to present to the learner, give some thought as to how long each piece of content will take to digest and when content should be optional. If there is an intended order in which learners can benefit most from this content, make that clear in your page design.

The mentioned literature is related to the current study as it explains the process and importance of doing good content for videos especially for instructional materials.

5. DISCUSSION

Table 1. Level of Acceptability of Comprehension Enhancer Activity Booklet in terms of Activities

Statements	Mean	SD	Remarks
Activities are all connected on the topic	4.80	0.42	Strongly Agree
Instructions are clear and understandable.	4.80	0.42	Strongly Agree
Tasks are applicable to the learning being assessed.	4.90	0.32	Strongly Agree
Tool generates data that are relevant to the course desired learning outcome.	4.90	0.32	Strongly Agree
Activities being used are enjoyable, fun and exciting.	4.80	0.42	Strongly Agree
Weighted Mean: SD	4.84: 0.370		
Verbal Interpretation	Very High		

The (WM=4.84 Sd= 0.370) imply a very high level of acceptability on the activities in the comprehension enhancer booklet since the activity booklet help the students to understand the instruction and generate desired learning outcomes while the enjoyment and exiting were observed.

Table 2. Level of Acceptability of Comprehension Enhancer Activity Booklet in terms of Content

Statements	Mean	SD	Remarks
Language used is understandable and specific.	4.90	0.32	Strongly Agree
Meaningful information regarding the topics is directly provided.	4.90	0.32	Strongly Agree
Instruments length and level of complexity are appropriate for the users.	4.80	0.42	Strongly Agree
Information is effective and helpful to complete the given task.	4.90	0.32	Strongly Agree
The organization of information is clear.	4.90	0.32	Strongly Agree

Weighted Mean: SD	4.88: 0.328
Verbal Interpretation	Very High

The level of acceptability of creativity, that is, the acceptability of the layout, color, outline and the materials used in the booklet is reflected in Table 3. The booklet has a very high acceptability with respect to creativity. This can be seen through its overall mean of 4.82. The statements which best reflects this level of acceptability are, "Color used are appropriate (M = 4.90, SD = 0.32)," and "The combination of materials used are good in the eye (M = 4.90, SD = 0.32)." The statement, "Different layout and techniques for every material (videos, pictures, and modules) are used (M = 4.70, SD = 0.48)." least indicates the above – mentioned level.

Table 3. Level of Acceptability of Comprehension Enhancer Activity Booklet in terms of Creativity

Statements	Mean	SD	V.I.
Different layout and techniques for every material (videos, pictures, and modules) are used.	4.70	0.48	Strongly Agree
Materials are creatively made.	4.80	0.42	Strongly Agree
Color used are appropriate	4.90	0.32	Strongly Agree
Good strategies on outlining content is visible	4.80	0.42	Strongly Agree
The combination of materials used are good in the eye	4.90	0.32	Strongly Agree
Weighted Mean: SD	4.82: 0.388		
Verbal Interpretation	Strongly Agree		

The (WM=4.82 Sd= 0.388) imply a very high level of acceptability on the creativity in the comprehension enhancer booklet, it shows that the language used is easily to understand and very specific activity booklet help the students to understand the instruction and generate desired learning outcomes, it has an effective and meaningful information; and it has an instrument which has a complexity appropriate to the level of understanding of the learners were observed.

Table 4. Level of Acceptability of Comprehension Enhancer Activity Booklet in terms of Design

Statements	Mean	SD	Remarks
Construction of material is well organized.	4.90	0.32	Strongly Agree
Sequence of materials is well appropriate.	4.90	0.32	Strongly Agree
Patterns are used to make a clearer version for the users.	4.90	0.32	Strongly Agree
The design of the materials are designed according to the content.	4.80	0.42	Strongly Agree
Instructional material is appropriately made for the users.	4.90	0.32	Strongly Agree
Weighted Mean: SD	4.88: 0.328		
Verbal Interpretation	Very High		



The (WM=4.88 Sd= 0.328) imply a very high level of acceptability on the design in the comprehension enhancer booklet, it shows that the construction of material is well organized, sequence of materials is well appropriate, patterns are used to make a clearer version for the users and instructional material is appropriately made for the users and the design of the materials is according to the content were observed.

Table 5. Level of learners' performance in terms of pre-test

Scores	Frequency	Percentage	Descriptive Equivalent
48 – 50	0	0.00	Mastered
43 – 47	0	0.00	Closely Approximating Mastery
33 – 42	0	0.00	Moving Towards Mastery
28 – 32	0	0.00	Average Mastery
8 – 27	45	100.00	Low Mastery
3 – 7	0	0.00	Very Low Mastery
0 – 2	0	0.00	Absolutely No Mastery
Total	45	100.00	
Mean Score	14.11		Low Mastery
Lowest Score	8		
Highest Score	20		
Standard Deviation	3.256		

The level of performance of the students in the pre - test. It shows that all of the forty – five (45) students obtained scores between eight and twenty – seven (27) which is equivalent to a low mastery level of performance. The highest score is twenty (20), the lowest score is eight, and the pre-test mean score is 14.11 when taken altogether suggest that the class as a whole has a low mastery performance in the pre – test.

Table 6. Level of learners' performance in terms of post-test

Scores	Frequency	Percentage	Descriptive Equivalent
48 – 50	0	0.00	Mastered
43 – 47	11	24.44	Closely Approximating Mastery
33 – 42	33	73.33	Moving Towards Mastery
28 – 32	1	2.22	Average Mastery
8 – 27	0	0.00	Low Mastery
3 – 7	0	0.00	Very Low Mastery
0 – 2	0	0.00	Absolutely No Mastery
Total	45	100.00	
Weighted Mean	39.27		Moving Towards Mastery
Lowest Score	32		
Highest Score	46		
Standard Deviation	3.822		

With the (Weighted Mean = 39.27, SD = 3.822) and with Lowest score = 32 and Highest score = 46 shows that the level of learner's performance in post-test has a descriptive equivalent of Moving Towards Mastery. The result imply that it is effective to use instructional material like comprehension enhancer activity booklet since it shows that a high increase in the score gather from the post test.

Table 7. Difference on the grade 8 students pre-test and post-test mean scores with the use of instructional material

Test	Mean	t-value	critical t-value	p-value	Analysis
Pre-test	14.11	33.609	1.6628	0.0000	Significant
Post test	39.27				

With the mean scores of 14.11 in pretest and in posttest with the mean scores of 39.27 indicated that there is an increase in the students' performance with the use of innovative instructional material help them to enhance the performance in Chemistry 8. The t-value of 13.609 is greater than the critical t-value of 1.6628 and supported with p-value of 0.0000, it can infer that there is an increase in the performance and the analysis is Significant.

6. CONCLUSION

On the basis of the foregoing findings, the following conclusion was drawn.

Based on the data, it is shown that there is a significant difference on the grade 8 students pre-test and post-test mean scores with the use of instructional material at 0.05 level of significance. It shows that the null hypothesis stating that "There is no significant difference on the grade 8 students pre-test and post-test mean scores with the use of instructional material" is rejected, it can infer that there is "significant" difference between them.

7. RECOMMENDATION

In the light of the conclusions stated, the following recommendations were forwarded. Here are some ways that the innovative instructional materials can be utilized.

1. The teachers are encouraged to continue using and exploring other innovative instructional material that may enhance students' academic performance. By doing this, the learning of the students would be more fun, interactive, interesting and relevant that will enhance their academic performance.

2. School administration may provide support to the teachers by giving them additional training for other teaching strategies that can be helpful to the students.

3. Other schools can utilize this study to explore other teaching strategies that can help students improve their academic performance. This can also provide areas of research in classroom management and delivery instruction and other educational services.

4. The future researchers may use this research as one of the references in conducting further study with the inclusion of other variables to evaluate the study conducted.

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