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Oral and Written Numeracy Assessment Tools and E-Games: It's Effectiveness as an Approach in Teaching Mathematics

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***Abstract*: Since Mathematics is an indispensable tool for technological age, it is the role of Mathematics teachers to provide opportunities to learners to learn materials which may be considered new or modern. Unfortunately, despite all the changes and initiatives, there are still problems in Mathematics education. Generally speaking, many learners even see Mathematics as a difficult subject. Some learners tend to hate numbers while some show no interest on learning about it at all. This action research would be useful and effective in making learners enjoy as they learn Mathematics easily. This study was undertaken to determine the effectiveness of Oral and Written Numeracy Assessment Tools and E-games as an Approach in Teaching Mathematics at Jorge M. Atienza Elementary school, District of Sta. Teresita, Division of Batangas, Philippines. Specific questions were answered in the course of the study. The descriptive research design was used with a questionnaire as the main data-gathering instrument. The researcher personally administered the instrument to the 102 pupils of the school under study. Data were tallied and interpreted with the use of percentage and weighted mean. Based on the gathered data, the effectiveness of oral and written numeracy assessment tools and E-games were evident, especially in making pupils enjoy the subject. This indicated that learning took place while the learners are enjoying and they performed well in Mathematics classes while using the said innovative program. However, learners themselves encountered problems dealing with this program. This meant that teachers should find ways and means to improve their methods on planning and crafting oral and written numeracy assessment tools and E- games so that the learners could cope up with the topic difficult for them. Moreover, the proposed action plan focused on the weak findings of this study. Corollary to these it was highly recommended that the positive attitude and interest of the learners towards Mathematics must be holistically inculcated to their minds and heart.**

***Keywords*: Numeracy, assessment Tool, E-games, Technology, Innovation.**

1. Introduction

As an important academic subject, Mathematics has its own attributes and functions. As a tool by which technological advancement is made possible, it is considered an essential human endeavor responsive to human needs and dictated by human existence. It is evident in all societies and culture. Due to the various contributions and importance of Mathematics to modern life, the elementary, the secondary and even tertiary schools act as the foundation in which the entire structure of education stands and serves as agent of change thus makes Mathematics teaching responsive to the needs of our ever changing society.

Truly and indeed, Mathematics should be made meaningful to all. This implies that teachers should teach it with efficiency and effectiveness through the application of better strategies which make use of integrating worthwhile values in the teaching and learning of the subject. Furthermore, the pupils should be made to realize that Mathematics is useful by making them see its application. Pupils need to be motivated and directed to appreciate Mathematics by making them realize and understand that it is, and will always be a part of their lives. To attain the said purpose, teachers of Mathematics should find innovative ways to improve the learning capabilities among the pupils, identify and remedy weaknesses, and provide the learners with experiences which can foster positive attitude to learn the rudiments of mathematical knowledge and skills.

Generally speaking, many pupils even see mathematics as a difficult subject. Some students tend to hate numbers while some show no interest on learning about it at all. Thus, in today's society, learning and being above average in mathematics seems to be more of an in-born talent rather than a learned and acquired skill. There are many factors that affect children's learning habits towards Mathematics as well as other considerations such as the environment and other forms of distractions. These form part of the challenge posted for Mathematics teachers who are required to develop strategies to engage students and make them not only listen about the lessons but also become capable of applying it in real life.

Hence, the researcher, being an elementary Mathematics teacher who also experiences the same dilemma, deems it necessary to make an action research that will help determine strategies that will be useful and effective in making the students enjoy and learn Mathematic easily. Past research has indicated that teachers who design, develop and implement innovative teaching methods in their classrooms are more likely to capture students' interests and to optimize their learning outcomes than those who do not (Chandra & Fisher, 2009). More so according to studies, in a meaningful and fun-filled context, children can acquire skills without the pressure and fear of failure in quite the same way as they might feel in a more

structured learning environment.

Purposefully an innovation program for curriculum and instruction (C & l) that could help increase learner's achievement particularly in Mathematics, The Utilization of Oral and Written Numeracy Assessment Tools and e-Games for Diverse K to 12 Leaners was implemented in the Division of Batangas. The program aims to determine reliable information to measure and identify learners numeracy level, speed and accuracy on specific content and standard and to design appropriate tools for diverse learners that would be suited on the teachers teaching style and learners learning needs to cope the unmastered skills and competencies of the slow learners and on the other hand, to provide more complicated skills to advanced learners.(Division Memorandum. 101 S. 2018).

2. Literature review

According to many experts, students' learning is optimized when the students take an active rather than passive role in the learning process. Cordova (2006) stated that the students learn by doing, making, writing, designing, creating and solving. Passivity decreases students' motivation and curiosity. Students' enthusiasm, involvement and willingness to participate affect the quality of class discussion as an opportunity for learning. Furthermore, National Research Council (2009) illustrated that students who acquired hands-on, authentic experience may develop curiosity and interest, leading to a desire to learn more. In using E-games in Mathematics, Bragg 2012 argued that teachers introduce games to students for a range of reasons, including that for an improved attitude towards mathematics, enjoyment, motivation and engagement, disguising of drill and practice, the development of social skills, and as a warm-up activity or reward. Furthermore, games involve higher-level thinking. He also suggested that students be encouraged to reflect on their learning during and after the game-playing experiences. This study explored whether it might be useful for mathematics teachers to use more creative pedagogical practices, such as e-games, in improving the classroom environment and students' attitudes towards mathematics at intermediate level.

According to Annetta et al. (2010), the learning from games is more likely to be retained. It is a common misperception that all learning should be serious in nature and that, if one is having fun, then it is not really learning. He purports that it is possible to learn mathematics while enjoying oneself and that one of the best ways of doing this is through games. In support, Paraskeva et al. (2010,) stated that the use of games is a "fun, engaging, motivating, interesting and encouraging way" of teaching. They also state that games have the potential to teach complex new information to students and that, in their opinion, both academic performance and interpersonal relationships are likely to be enhanced through the use of games.

A research study conducted by Huyen and Nga (2003), student said that they liked the relaxed atmosphere, the competitiveness and the motivation that games brought to the classroom. On the effectiveness of games, teachers reported that their students seem to learn more quickly and retain the learned materials better in a stress-free and confortable environment. They can participate fully in all the activities without being pressured. They recommended incorporating games in the classroom for learning to be more effective and exposed learners to positive competition. Using the tool as part of program assessment "Evaluate Teaching Strategies" helps learners evaluate how different teaching strategies worked for them. The practitioner could use this information to better inform instruction and develop activities and approaches to better suit learners. Learners will gain insights into strategies that work for them. In line with this, the use of Oral and Written Numeracy Assessment Tools is a must when teachers want an effective evaluation of learning outcomes.

3. Results

The effectiveness of oral and written numeracy assessment tools and E-games were evident as disclosed by the overall average mean rating of 3.08. Enjoying while learning was the topmost in the rank as revealed with the highest weighted means of 3.88 as assessed by the pupils themselves. This indicated that learning took place while the learners are enjoying and they performed well in Mathematics classes while using the said innovative program. However, learners themselves encountered problems dealing with this program. This meant that teachers should find ways and means to improve their methods on planning and crafting oral and written numeracy assessment tools and E- games so that the learners could cope up with the topic difficult for them. Moreover, the proposed action plan focused on the weak findings of this study. Corollary to these it was highly recommended that the positive attitude and interest of the learners towards Mathematics must be holistically inculcated to their minds and heart.

4. Discussions

The results demonstrate that E-games was an effective approach in teaching Mathematics suited to the needs and abilities of the learners coupled with activities within their experience and interest in the stress-free and comfortable environment. This was congruent with the study of Paraskeva (2010) stated that the use of games is a "fun, engaging, motivating, interesting and encouraging way" of teaching. In line with this, the use of Oral and Written Numeracy Assessment Tools is a must when teachers want an effective evaluation of learning outcomes.

5. Conclusion

Based from the findings of the study, the following conclusions are drawn.

- The effectiveness of oral and written numeracy tools and E-games were evident.
- The pupils themselves encountered problems in

dealing with numeracy assessment tools and E-games program.

- The proposed enhancement action plan focused on the weak findings of the study.

6. Recommendations

From the findings and conclusions of the study, the following recommendations were offered.

- The teacher should be encouraged to exert extra effort so that effectiveness of the program manifested to a higher level.
- Inform/notify the parents or guardians of their children's progress in the Mathematics by consistently signing the learners' worksheet.
- The pupils must inculcate in their minds the positive attitude and interest to study their lessons in Mathematics.
- A follow-up study should be conducted to determine the improvement of the effectiveness of the program being studied. Pupils' academic performance level in Mathematics should be included as additional variable.

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