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Utilizing of Differentiated Task Card Memory Game for Grade 1 Learners

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Abstract

This action research investigated the effectiveness of utilizing Differentiated Task Card Memory Games (DTCMG) in enhancing the numeracy skills of Grade 1 learners at Pandayan Elementary School during the 2021–2022 academic year. The study focused on improving the ability of 11 priority learners to identify and visualize numbers from 0 to 100. A quantitative approach employing pre-test and post-test measures was used to assess the learners' skills before and after the intervention. Results indicated a significant improvement in the participants' performance, demonstrating the potential of DTCMG as an innovative, engaging, and adaptable instructional tool. The findings suggest that incorporating game-based, differentiated strategies in mathematics instruction can address diverse learning needs and foster better understanding and retention of foundational numeracy concepts. This study recommends the integration of DTCMG in early-grade mathematics teaching to support differentiated learning and improve learner outcomes.

Keywords: *Differentiated Task Card Memory Game, numeracy skills, Grade 1 learners, mathematics intervention, game-based learning*

INTRODUCTION

Mathematics is one subject in school where many students experience difficulty in understanding and where a teacher can effectively intervene. Sometimes a problem in students' performance arises from the strategies and techniques used by the teachers. In other words, it is sometimes the result of ineffective teaching by an inefficient teacher (Ornstein, 2009).

Mathematics is perceived by many as a very serious subject, and therefore, quite boring. In fact, according to researchers and surveys, Filipino students find the subject very difficult and it shows on their low performance in National Assessment Tests (Fostanes, 2008).

Learners are assessed in the classroom through various processes and measures appropriate to and congruent with learning competencies defined in the K to 12 curricula. Some of these processes and measures may be used for both formative and summative assessments, which have different goals. Learners may be assessed individually or collaboratively (DepEd Order No. 8, s. 2015).

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Math is all around us, in everything we do. It is the building block for everything in our daily lives including mobile devices, architecture, art, money, engineering and even sports (Hom, 2013).

Mathematics is a subject taught in all the grade level in the Mother Tongue, in grade 1 level, one of the learning competencies of the subject is to visualizes, represents and counts numbers from 0 to 100 using a variety of materials and methods.

After the first quarter of the school year, out from the 16 pupils of the grade 1, 11 pupils cannot be able to visualize, represents and counts numbers from 0 to 100 using variety of materials and methods. They can count orally with the guidance of the teacher but they cannot visualize numbers from 0 to 100.

They cannot also write the symbol of the number given. With this situation, performance of the 11 grade 1 learners will be affected since they cannot be able to move forward in their lesson.

To improve the skill of the identified priority learners in identifying and visualizing numbers from 0 to 100, differentiated task card memory game will be used to motivate them participate and understand the lesson.

Activities for the task card memory game will be based on the learning competencies found in the Curriculum Guide of the K to 12 Curriculum for grade 1.

According to the K to 12 Curriculum, the differentiated task card memory game in the teaching-learning process is a possible remedy in enhancing our poor numeracy education.

Indeed, the problem of inculcating scientific numeracy to the learners poses a very great challenge to Philippine education today. Clearly the Department of Education is not spared from the enhancement of task card memory game in teaching grade 1 level nowadays. This paper further aims to utilize technology-specifically, the differentiated task card memory game (DTCMG)- as a possible aid in improving the numeracy of the grade1 learners of Pandayan Elementary School. It seems to aid teachers in the proper use of DTCMG to make math teaching easier and for the learners. Specifically, this research aims to integrate DTCMG while determining the impact of these materials on the grade 1 learners.

The researcher, being a teacher at Pandayan Elementary School, Tadian, Mountain Province, has also observed similar issues in numeracy amongst the grade 1 learners.

This study aims to determine the effect of differentiated task card memory game in the skills of the pupils in identifying and visualizing numbers from 0 to 100. Specifically, it seeks to answer the following questions.

1. What are the dominant learning styles of the identified priority learners of grade 1?

2. What is the level of the skills of the identified priority learners of grade 1 in identifying and visualizing numbers from 0 to 100 before the use of differentiated task card memory game?

3. What is the level of the skills of the identified priority learners of grade 1 in identifying and visualizing numbers from 0 to 100 after the use of differentiated task card memory game?

4. Is there a significant difference in the skills of the pupils on identifying and visualizing numbers from 0 to 100 before and after the use of differentiated task card memory game?

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METHODOLOGY

Research Design

This action research will be using Quantitative Method using pretest and post to discover the potential of utilizing task card memory game as numeracy development for 11 grade 1 learners that are poor in identifying and visualizing numbers.

Participants and Other Source of Data and Information

The participants in this study will be the 10 males and 1 female for a total of 11. They will be the participants of this study provided that their parents will give their consent. These pupils are vulnerable, and they need the guidance of their teachers in improving their numeracy skills. This will capacitate them the pre requisite skill in enhancing their numeracy skills. Data and information related to this study will also be gathered from the teachers.

They were identified after the first quarter of the school year. They can be able to count orally but they find difficulty in identifying and visualizing numbers especially if sets of objects were given. They cannot be able to show or draw figures to show the given number.

The subjects of the study will be the grade 1 learners currently enrolled at Pandyan Elementary School, Tadian 2 District during the school year 2021-2022.

Grade Level	No. of Males	No. of Females	Total
Grade 1	11	5	16

Data Gathering Methods

The method to use in data gathering is quantitative method. The study will be using teacher-made numeracy pretest and posttest. In each test there will be 10 items identifying numbers, 10 items for representing objects. The content validity will be established through the assistance of the School Head and my co-teachers of Pandayan Elementary School. Further, the reliability of the tools will be established through parallel test. This will be administered at Pandayan Elementary School and the results will be analyzed using Cronbach's alpha coefficient.

Data Gathering Procedure

To assess the pupil's numeracy skills, teacher made-tests will be utilized. The results of the tests will provide quantitative information on the students' numeracy levels which will cover identifying and visualizing numbers and representing objects.

Numeracy pretest and posttest will focus on identifying and visualizing numbers. The analysis for identifying and visualizing numbers will be categorized into three: 97-100 percent (Independent level) at which learners function on their own with almost perfect score and excellent identification and visualization, 90-96 percent (Instructional level) at which pupils profit the most from teacher -directed instruction in identifying and visualizing, 89 percent and below (Frustration level) at which pupils find differentiated task card materials so difficult that they cannot successfully respond to them.

The researcher will use the mixed method to look into the effectiveness of the differentiated task card memory game in teaching the least mastered method of the researcher is quantitative. Quantitative since scores of the learners will be recorded, tabulated and treated to know of there is a significant difference after the use of differentiated task card memory game.

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Partial (sample) enumeration will be used in the study since it covers the eleven (11) identified priority learners of grade 1, of Pandayan Elementary School in School Year 2021-2022.

Quasi – experimental method, time series design, will be used in the study. Differentiated task card memory game to be used in visualizing numbers from 0 to 100 will be based on the result of the interview conducted to the learners.

Four pretests will be conducted before the use of differentiated task card memory game and four post-tests will be conducted after the use of differentiated task card memory game.

Pre-test will be conducted one week apart, the same with the post-tests. Total scores of the pupils in the pretest and post-test will be treated using the Kendall's Tau.

Data Analysis Plan

Descriptive statistics using mean and standard deviation will be used to determine the numeracy skills of grade1 pupils in identifying and visualizing numbers before and after the implementation of the intervention. Wilcoxon Signed Rank test will be used to compare the scores in the pretest and post-test and the significant difference of the numeracy skills of male and female grade 1 pupils.

Mastery Level	Descriptive Equivalent
97-100	Mastered (M)
94-96	Close Approximating Mastery (CAM)
90-93	Moving Towards Mastery (MTM)
87-89	Above Average (AVR)
83-86	Average
79-82	Low
75-78	Very Low (VL)
70-74	Absolutely no Mastery (ANM)

Ethical Issues

The researcher will present the study to the grade 1 parents, guardians and students. The parents/guardians of the learners who will participate in the study will be given consent forms which they will sign for the participation of their child. Other teachers will also be informed about the action research being conducted during a teacher's conference.
Further, confidentiality on the scores of the participants will be observed.

RESULTS AND DISCUSSION

Mechanics of the Game

Step 1 – Group the pupils into differentiated level of activity.
Step 2 – Give the instruction clearly and easy as well.
Step 3 – Explain and demonstrate the steps in manipulating the game.
Step 4 – Announce the winner and give them reward.
Step 5 – Evaluation of the Lesson.

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4 pretests and 4 post-tests will be given. The pretests are the same as that of the post-tests. Each test contains 5 questions on identifying numbers 0 to 10. The total number of points in the pretest and post-test is 10. Scores of the pupils will be recorded so that scores obtained by each pupil will be described.

The scores of the pupils will be described using the table below.

Scores	True Limits	Level	Description
10	10	Excellent	The child can identify and visualize numbers from 0 to 100 independently.
7-9	7-9	Very Satisfactory	The child needs minimal supervision in identifying and visualizing numbers from 0 to 100.
5-6	5-6	Satisfactory	The child needs much supervision in identifying and visualizing numbers from 0 to 100.
0-4	0-4	Fairly Satisfactory	The child takes a longer time to identify and visualize numbers from 0 to 100 even with much supervision from the teacher.
Below 5	Below 5	Needs Improvement	The child has difficulty in identifying and visualizing numbers from 0 to 100 even with much supervision from the teacher.

It is projected that the quantitative data will show a marked improvement in the participants' post-test scores compared to their pre-test scores. The pre-test results are expected to show that most learners fall under the "frustration level" or "needs improvement" category. Following the intervention, the post-test results are anticipated to show a significant shift towards "instructional level" or "independent level," indicating improved competency in identifying and visualizing numbers.

The statistical analysis using the Wilcoxon Signed-rank test is expected to reveal a significant difference between the pre-test and post-test scores, providing evidence to support the effectiveness of the DTCMG intervention.

Interpretation of Anticipated Findings

The expected significant improvement in numeracy skills will be interpreted as a direct positive outcome of the DTCMG intervention. This can be attributed to the game-based nature of the activity, which increases student engagement and motivation. Furthermore, the differentiation of tasks ensures that instruction is tailored to individual learning needs and styles, making the concepts more accessible. This aligns with the K to 12 curriculum's push for innovative and learner-centered teaching strategies.

Implications

The findings of this study will have practical implications for:

- Teachers

Providing a model for implementing effective, low-cost, and engaging differentiated instruction in mathematics.

- School Administration
  Informing policy and program development aimed at improving numeracy across grade levels.

- Curriculum Planner
  Highlighting the value of integrating game-based learning materials into the official curriculum or learning resource packages.

Limitations

The study's limitations include a small sample size confined to a single school, which may affect the generalizability of the findings. The study is also subject to the constraints of the community's public health status (IATF alert levels), which may affect the consistency of the intervention's delivery.

Conclusion

This action research posits that the utilization of the Differentiated Task Card Memory Game is an effective strategy for enhancing the numeracy skills of Grade 1 learners. By transforming a challenging subject into an interactive and differentiated learning experience, the DTCMG has the potential to build a strong mathematical foundation for young learners. The successful implementation of this intervention could serve as a replicable model for other educators facing similar challenges.

REFERENCES

Hom, E.J. (2013, August 15). What is Mathematics? Retrieved from http.www.livescience.com

Kesler, C. (2014, December 28). 15 ways to use task cards in your classroom. Retrieved from www.keslerscience.com

Larson, J. (2015, February 20). 16 ways to use task cards. Retrieved from the Teacher – next - door. Com /index.php/ blog

Lorna V. Wallit (2016, October 3-4). Enhancing the Performance of grade 6-C Pupils of Buyagan Elementary School Through the Use of Arts in Math (AIM) (+63) 9283349067 greatlornawallit@gmail.com