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JOINED ETCOR
P - ISSN 2984-7567
E - ISSN 2945-3577



The Exigency
P - ISSN 2984-7842
E - ISSN 1908-3181

FADS (FAQES All-in-One Digital Stories): Innovative Materials in Addressing Learning Gaps in Numeracy and Literacy

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Received: 29 June 2023

Revised: 25 July 2023

Accepted: 28 July 2023

Available Online: 29 July 2023

Volume II (2023), Issue 3, P-ISSN – 2984-7567; E-ISSN - 2945-3577

ABSTRACT

Aim: This study aimed to investigate how the teachers of Fernando A. Quisumbing Elementary School learned and worked with the digital stories as all-in-one learning recovery materials and innovative instructional materials in addressing the learning gaps in numeracy and literacy of their pupils by contextualizing through applying ethnomathematics (combination of culture and mathematics) and as part of the school's learning recovery plan framework; their experiences and perceptions in designing the all-in-one learning recovery materials through the implementation of Program on Project COPE LRM (Contextualized and Pedagogical Learning Recovery Materials) that adheres to DepEd Mission-Vision and supports the new battle cry of Department of Education which is MATATAG. This study determined how the contextualized digital stories as all-in-one learning recovery materials influenced pupils' engagement and recovery through teachers observation.

Methodology: This was a descriptive – qualitative research and data were collected through interviewing the fourteen (14) teacher-respondents with structured questionnaires. Transcription was made and thematic analysis was utilized.

Results: The study showed that Program on Project COPE LRM enabled the teachers to design digital stories with mathematical concepts. There were three themes arose regarding their experiences in designing these innovative instructional materials : digital literacy, collaboration and networking, and engagement. The result of this study also revealed that teachers are skilled in technology and contextualization, however, they had difficulty in integrating mathematics based on MELCs (Most Essential Learning Competencies) and in creating stories according to the level of their pupils.

Conclusion: Therefore, teachers must be skilled not only in technology advancement and contextualization but must be skilled in writing and expert in designing innovative instructional materials. Thus, it was highly recommended that training for teachers on writing story according to the level of the learners must be conducted and devolve this study in the Division of San Pablo City. Further study must also be conducted regarding the designing of all-in-one digital stories to address the learning gaps in numeracy and literacy.

Keywords: Contextualization, Pedagogical Materials, Digital Stories, Ethnomathematics

INTRODUCTION

Learning loss must be regained to prevent continuing damage to learners' well-being and productivity, thus, the Department of Education, with its resiliency developed learning recovery plan to help the school in the effective implementation of K to 12 Curriculum.

Curriculum specifies to what the learners should learn from school and how these learnings from school help them to learn for life. Thus, it must show the relevance of these in their lives so that they will be interested to learn and understand the importance of these in real-life situations and demands. This is one of the contents of MATATAG, "Making the curriculum relevant..." Thus, it is preparing the learners for certain workplace that requires a certain set of skills and abilities that must have been developed and acquired the competencies that the teachers are trying to help them to develop and master (GOVPH, 2023). Hence, it is important to have curriculum review and implement



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program and project that will help teachers. Particularly now that the educational sectors are facing the new era which is the post pandemic which resulted to learning gaps in numeracy and literacy especially among the pupils.

Similarly, the STRATA Framework under the Learning Recovery Plan of the Division of San Pablo City encourages the upskilling and reskilling of teachers, hence, Fernando A. Quisumbing Elementary School with its learning recovery plan framework FAQ ES wherein the "F" stands for "Facilitators are teachers.", the principal who was also the researcher was prompted to conduct this study to address the learning gaps in numeracy and literacy at Fernando A. Quisumbing Elementary School by implementing a Program entitled Program Project COPE LRM (Contextualized and Pedagogic Learning Recovery Materials) that enabled teachers to design learning materials specifically digital stories that were all-in-one. This program on PROJECT COPE LRM was implemented through series of training for teachers under learning recovery plan of FAQ ES (Fernando A. Quisumbing Elementary School).

This program not only supported the new battle cry of Department of Education "MATATAG" but it also adhered to section 10.2.h of RA 10533 or Enhance Basic Education Act of 2013, which stipulated that the Department of Education shall adhere to the standard that "the curriculum shall use the spiral progression approach to ensure mastery of knowledge and skills after each level;". Spiral progression approach was derived from Bruner's Spiral Curriculum. Aligning learning materials to the uniqueness of our learners is also deemed necessary. Thus, this Project COPE enabled the teachers to contextualize the learning materials by applying Ethnomathematics in designing digital stories to make it all-in-one learning materials. Ethnomathematics is a new field of Mathematics to teachers based on the studies conducted by Tiquis (2019), Ethnomathematics helped the teachers in localizing and contextualizing their lessons and they gained and increased their understanding of the nature of mathematics and enabled them to design culture-based instructional materials. Their awareness of ethnomathematics aroused their desire to learn more about how they could use to apply their knowledge in contextualizing their lessons in all the competencies in the curriculum (Tiquis, 2019). Contextualizing the learning resource materials was a possible way to address and resolve the problems of deficiencies in instructional materials and make teaching and learning relevant and responsive (Hizon, 2019). As the school of head of Fernando A. Quisumbing initiated the school-based reviewing of the instructional materials used by the elementary teachers, most of the 14 teachers suggested that there's a need to contextualize their instructional materials particularly in mathematics. Based on the result of the study by Cubillos (2020), contextualized learning materials were effective in developing the conceptual understanding of students and mastering competency in Mathematics Grade 7 and she suggested that teachers may also develop more contextualized learning materials for other topics in Mathematics and for other subject areas to address the learners' least mastered skills.

These materials were not only contextualized but All-in-One pedagogical materials. These contextualized pedagogical instructional materials were reading materials, since technological advancement in teaching would be a great help in wide range of activities in the teaching-learning process the designed reading materials made were with the attachment of technology through putting QR Code on each of them that makes the designed material speak for itself to cater the audio-visual learners aside from helping the students to read and there would also be pictures that make these materials interesting particularly to visual learners, hence these materials were digital stories. Digital storytelling or stories were the pedagogic materials to be made as all-in-one because through these learners according to Niemi, H., et al (2018) digital storytelling method made students learned not only about mathematics but also how mathematics is relative to real-life situation and likewise, the teachers testified that their learners displayed active knowledge creation, increased motivation and engagement and supports students' development in math literacy. Storytelling was tried and tested method in education, and lots of studies conducted that explained that storytelling had been used as medium of instruction in education of all types (Andrews, D., et al, 2009) and because of technologies of the 21st centuries storytelling became richer and incorporated with digital media like videos, audio files and as well as images which was called digital storytelling and Technology plays a central role in digital storytelling and teachers can create digital stories can appeal to diverse learning styles, allowing instructors to present abstract or conceptual information in a more understandable way. (Bouchrika, 2023).

Research Questions

As part of the learning recovery plan, the researcher conceptualized the program entitled Program on Implementing Project COPE LRM (Contextualized and Pedagogic Learning Recovery Materials). This helped teachers in dealing with their challenges in this advent of post pandemic where learning loss need to be recovered by bridging the gap caused by COVID 19 Pandemic. This program helped the teachers of Fernando A. Quisumbing to be upskilled and reskilled and enabled them to design learning materials to address numeracy and literacy and in handling diverse learners and inculcating cultural education. Specifically, this study sought answers to the following questions:



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1. How do the teachers of FAQ Elementary School learn and work with the digital stories as all-in-one learning recovery materials?
2. What are the FAQ Elementary School teachers' perception in designing digital stories as innovative materials in addressing the gaps in numeracy and literacy?
3. How do the contextualized digital stories as all-in-one learning recovery materials influence pupils' engagement and recovery?

METHODS

Research Design

This study was descriptive- qualitative research. Qualitative research involves collecting and analyzing non-numerical data to understand concepts, opinions, or experiences. Focus-group discussion, reviewing of instructional materials and series of training for enhancement were conducted for teachers which were initiated by the school head who was also the research proponent. The problems that were identified aside from learning gaps in numeracy and literacy were : insufficient contextualized learning materials; needs for appropriate materials to be used and teachers' inability to design culture-based materials. Thus, this innovative Program Project COPE LRM (Contextualized and Pedagogical Learning Recovery Material) aimed to Uphold the KSA (Knowledge, Skills and Aptitude) of teachers in localization and contextualization; Encourage the teachers to design culture- based materials; Design all in one learning recovery materials (catering different learning styles, contextualized, localized, indigenized, digitized – with technology integration), and Increase the academic performance of the learners particularly the numeracy and literacy rates.

Population and Sampling

The participants as well as the respondents of this research were all the fourteen (14) teachers of Fernando A. Quisumbing Elementary School. They were teachers for the school year 2022-2023.

Data Collection

The gathering of data was made by interviewing them. This got the picture of the thought, feelings, and behavior of the FAQ teacher-participants about designing digital stories as innovative materials in addressing the gaps in numeracy and literacy of FAQ pupils. Hence, series of trainings were conducted in which there were four (4) sessions. First session was about the Introduction of COPE LRM (**C**ontextualized and **P**edagogic **L**earning **R**ecovery **M**aterials) which was conducted last January 27, 2023 during the SLAC (School Learning Action Cell). This session introduced about contextualization of the pedagogic materials using San Pablo City cultural icons that are familiar to the pupils of Fernando A. Quisumbing and the application of Ethnomathematics. The teachers were able to finish the framework for developing an enriched culture- based instruction. The second session was presentation of the first output of Project COPE LRM and all teachers participated in the presentation of their designed culture-based materials last February 10, 2023. The third session was conducted last February 24, 2023 which was about the designing of the digitized instructional materials that was Contextualized and Pedagogical Learning Recovery Material that could address the learning gaps in numeracy and literacy of the pupils wherein the teachers were able to make a story board or story and learned to digitize their stories by learning how to apply technological advancement by attaching the QR Code. Finally, the fourth session was the presentation of their finished digital stories and submit it for evaluation last March 3, 2023.

Data Analysis

The data analysis employed was thematic analysis. Transcription was made after collecting the qualitative data through interview, analyzed, and categorized from code to themes. Remarkable statements from the FAQ ES Teachers were highlighted to determine the similarities among their responses. Meanings were established from the substantial responses into themes. Through this method, the researcher developed themes of experience and perceptions to gain a deeper understanding.

Ethical Consideration

The researcher considered the confidentiality of the teachers personal profile to protect the fundamental human right of privacy as stipulated in Data Privacy Act 2012.



RESULTS AND DISCUSSION

A. Respondents

Table 1: The Participant – Respondents

Position	Total Number
Master Teacher	1
Teacher III	5
Teacher II	4
Teacher I	4
TOTAL	14

The table shows the number of respondents of this action research based on their position since they were all female teachers.

B. Digital Stories Made

Table 2 : Teachers Designed Contextualized and Pedagogical Learning Recovery Materials

Level	Title	Math Competency
Grade 1	Ang Magkaibigang si Tammy at Amy	Identifying Numbers
Grade 1	An Pyesta sa Aming Barangay	Reading Numerals
Grade 1	Ang Aming Paaralan	Reading numbers
Grade 2	Ang Tindahan ng Kakanin	Comparing Element of Sets
Grade 2	Ang Masayang Pamilya ni Mang Ben at Aling Belen	Understanding of Fraction
Grade 3	Ang Head Dress	Distance and Shapes
Grade 3	Ang Magkakambal Na Si Khaser At Kheiro	Addition of Numbers
Grade 4	Ang Batang Si Fernando	Solve problems duration of time
Grade 5	The Hard-Working Farmer	Performs two or more operations
Grade 6	Product of Thriftiness	Solve one or more steps routine problem

The table shows the digital stories made by the FAQ ES Teachers with the corresponding MELCs in Elementary Mathematics. This table revealed that teachers in the intermediate level there was only 1 digital story was designed in each level. This implied that there was still need of enough time in designing All-in-One Learning Recovery Materials.

C. FAQ ES Teachers' Experiences and Perceptions

Table 3 : Designing Digital Stories as All-in-One Instructional Materials

Code	Category	Theme
I learned new skills, such as recording and editing videos and finding new information from the internet.	New skills in recording and videos	Digital Literacy
I learned how to make a QR Code which I can attach to reading materials for my pupils.	Making QR Code to reading materials	Collaboration and Networking
I learned how to work with my colleagues and learned new ideas from each other	Working with colleagues and sharing ideas	
I asked help from my colleagues in to help me in digitizing my work	Helping each other	Engagement
In my opinion it was fun to do tasks that relate to digital storytelling	Fun in doing the task	
I worked hard during the Program on Project COPE	Hardworking in doing the project	



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It increased my interest on making instructional materials that are innovative	Designing instructional materials was more interesting	
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Table 3 revealed how do the teachers of FAQ Elementary School learn and work with the digital stories as all-in-one learning recovery materials. There were three (3) themes arose in the interview made by the researcher after doing the transcriptions of the interview. These themes were Digital Literacy, Collaboration and Networking, and Engagement.

Table 4 : The FAQ ES Teachers' Perceptions in Designing Digital Stories as Innovative Materials in Addressing the Gaps in Numeracy and Literacy

Code	Category	Theme
Innovative, out of the box, Illustrative	Digital Stories are made using QR Code	Skilled in technology and contextualization
Easy to learn and apply the technological advancement	Contextualizing is easy because it is familiar to diverse learners	
It is easy to contextualize by employing San Pablo City icons that are familiar to the pupils of FAQ ES	Difficulty in conceptualizing the story based on MELCs of Math	Needs training on writing stories
It deals with diverse learners' needs		
With difficulty in mathematics integration according to MELCs		
Find difficulty in conceptualizing the story		

Table 4 revealed that the theme of teachers' perceptions on designing the digital stories as innovative materials in addressing the gaps in numeracy and literacy were two: Skilled in technology and contextualization and Needs training on writing stories. They find that the digital stories are innovative and illustrative; they learned how to digitize the stories by putting the QR Code and they found it easy to contextualized by using San Pablo City icons like the history of the school, the legend of the Brgy. Bautista, the life style in the community and others; however, they find difficulty in integrating Mathematics concepts based on the MELCs for its level and they still need training on writing stories appropriate to the level of the learners based the evaluation of their submitted digital stories.

D. The Influence of the All-In-One LRM to Pupils Engagement and Recovery

- Pupils gained new knowledge about literacy and mathematics.
- Pupils learned how mathematics relates to everyday life.
- Pupils were motivated to listen to the stories.
- Pupils understand more clearly that mathematics is useful for them.
- Pupils learn math with fun while reading and listening/ watching the digital stories.
- Pupils have better understanding of what they have learned in reading and math.
- Pupils became more confident when talking about mathematics.

Summary, Conclusions, and Recommendations

The following results were revealed after the collected data were analyzed:

The FAQ ES All-in One Digital Stories (FADS) made by the teachers as innovative materials in addressing the learning gaps in numeracy and literacy served as supplemental materials that were designed by the teachers as the result of their training in the implementation of Program on Project COPE LRM (Contextualized and Pedagogical Learning Recovery Materials) and these influenced the pupils to be engaged and recovered based on the observation of the teachers. Pupils gained new knowledge about literacy and numeracy because mathematical concepts were integrated in these reading materials and they found them motivating and interesting because they could hear the sounds that increased their imaginations and illustrations made the reading materials appealing to them. The pupils realized that mathematics relates in their everyday life though the stories that they read. Hence, mathematics literacy increased not only their reading comprehension. The teachers worked collaboratively and had networking by helping each other and sharing ideas. The engagement in designing instructional materials like All-in-One digital stories was boosted because they found their experience challenging and interesting as manifested in the result of the thematic analysis. Based on the result they were skilled in technology and



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contextualization as they applied ethnomathematics (combination of culture and mathematics); however, they had difficulty in integrating mathematics according to the MELCs and also in writing the story appropriate to the level of their learners , hence, more trainings for teachers need to be conducted and give them ample time to produce reading materials with quality and equitable as part of the learning recovery plan.

The designing of FAQ ES All-in-One Digital Stories can be enhanced more if the teachers would become more aware on how to write stories appropriate to the level of their pupils, thus, it was highly recommended that seminars and workshops should be continued for more knowledge to be acquired about writing and designing digital stories and to become more knowledgeable. The teachers were encouraged to familiarize themselves to the specific needs of their learners. It is highly recommended that the teacher will be given an ample time in designing the digitized materials. The cultural heritage matrix theme was also recommended to have a record accessible to all.

It is also recommended to devolve this study to the Division of San Pablo to encourage teachers from other schools in producing digitized but culture sensitive learning materials through collaborative efforts that will address both the gaps in numeracy and literacy. And further research is also recommended on enabling teachers to design all-in-one digital stories as innovative materials in addressing the learning gaps in numeracy and literacy.

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