
A Case Study of Mathematics Teachers' Utilization of Genyo E-Learning

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ABSTRACT

This paper presents a multiple-case study investigating the utilization of Genyo e-Learning in teaching Mathematics. The study explores how Genyo e-learning enhances teaching effectiveness and meaning. The research involved four Junior High School, two Senior High School teachers, and five students from a private school in Pagadian City. Data were collected through interviews and focus group discussions using an interview guide questionnaire. The findings revealed that teachers view Genyo e-Learning in Mathematics as an online platform that provides electronic lessons and resources for students. It is also a supplementary tool that enables teachers to deliver lessons, conduct quizzes, share videos, and monitor students' progress. The importance of teachers' utilization of Genyo e-Learning promotes active engagement, improved instruction, and enhanced learning experiences. It cultivates enthusiasm, supports professional growth, and improves teaching skills. Recognition and rewards emphasize their significance in enriching the teaching and learning process. However, teachers using Genyo e-Learning in Mathematics face challenges with assigning activities to sit-in students, video upload capacity, entering formulas and equations in quizzes, poor internet connection, and unreliable answers. To overcome these challenges, teachers resort to self-exploration, creativity, attaching pictures of equations in quizzes, bringing the students to the computer labs, seeking technical assistance from DIWA LIS, and conducting assessments in school. Recommendations include follow-up sessions, orientations, technical assistance, and additional features such as class records, plagiarism scanners, and pause options in pre-recorded videos to enhance the utilization of Genyo e-Learning.

KEYWORDS: *Genyo e-Learning, Mathematics Education, Teaching Effectiveness, Online Learning, Multiple-case Study*

INTRODUCTION

During this time of the pandemic, the world plunges into uncertain times. Education shifted from physical classrooms to digital platforms. Teachers and students now rely on Learning Management Systems (LMS) for online learning. LMS provides structured modules and assignment submission features, enabling interactive learning anytime, anywhere. It also includes monitoring and reporting tools to identify areas for improvement and additional support (Aranzo, et al. (2023); Brush, 2019; Baron, 2020; Moorhouse & Walsh, 2021).

One of the numerous aspects of sudden adjustment to this New Normal is the Educational System. The educational system underwent a sudden shift to online learning due to the

pandemic (Casanova, et al. (2023). This transition affected the quality of math education. tTo address this, we need a teaching approach that maintains quality despite the lack of face-to-face nteraction. Learning Management Systems can help create electronic learning materials to support independent distance learning (Capacio, 2021).

According to Sharma (2015), the primary goal of LMS is to enhance the learning by providing content, course registration, administration, analysis, tracking, and reporting. It allows students to personalize their learning, access content at their convenience, and simplifies training and development (Luzano, 2020). LMS is crucial for planning, implementing, and delivering instruction. Studies show that technology-driven improvements promote effective learning, interactive content, and engagement, empowering both students and teachers (Luzano & Ubalde, 2023). (Findik-Coskuncay, 2018; Simanullang & Rajagukguk, 2020). Studies revealed that technology-driven improvements promote effective learning, interactive content, and engagement, empowering both students and teachers. (Marshall Cavendish Online, 2022)

Castillo (2011) believed that education had followed suit with an e-learning management system. According to him, modern learners are tech-savvy digital native youngsters. They are highly driven and crave technology. That is why DIWA Learning Systems Inc launched Genyo, an e-learning management system to cope with the technological advances and energize regular classroom experience.

Generation and Youth (Genyo), pronounced as 'Jen-yo,' is an entirely built-in e-learning management system (LMS) that provides engaging and interactive content for learners to enhance academic performance (DIWA, 2020). With video games, task activities, quizzes, assignments, and more, learners have a wide range of enjoyable learning options. Genyo simplifies learning by organizing easy access to subjects through the content tab. It also offers a 24/7 online subscription with multimedia content, record keeping, and grading features (Jam, 2017; Manila Standard Lifestyle, 2020).

Additionally, Genyo allows the teachers to create a lesson package that can cater to the learner's needs exhibiting the 5E's of Learning: Engage, Explain, Explore, Extend, and Evaluate (Hortal, 2021). Genyo covers five core subject areas: English, Science, Mathematics, Filipino, and Araling Panlipunan. The features of Genyo that students usually do with the system include: (1) Access interactive lessons with various content formats (lesson); (2) Answer online activities (quiz, assignment, question bank, oral assessment, oral assessment, flashcard); (3) Submit projects/tasks (podcast and shared blog); (4) Access educational games (games); (5) Have a virtual class with their teacher (using a third-party online conferencing application); (6) See announcements posted by diwa specialists and teachers in the Genyo announcement board (announcement); (7) See messages sent by teachers and have the chance to respond to the message. (messages) (Montessori Academy of Valenzuela, 2020).

In some ways, Genyo e-Learning can help teachers continue their lessons even when classes are interrupted because teachers can create pre-recorded videos and attach additional resources to engage students. The platform offers self-paced tutorials and videos to help students catch up on topics. The Forum feature allows open discussions and improved student-teacher interaction. The platform also enables teachers to monitor student progress, generate reports, and provide feedback on performance (GenyoPh,2020).

Moreover, Genyo e-learning strengthens individual techniques and customizes learning in virtual classroom. It focuses on instructing the present-day generation and provides meaningful training for instructors. Genyo's four C's of e-Learning are: Content (curriculum setup), Connectivity (linking to technology), Community (collaboration), and Change management (adapting teaching techniques) (Doe, 2017).

Aside from the advantages and usefulness of e-Learning, it also has limitations. E-learning has drawbacks such as learner isolation, leading to limited interaction with peers and instructors. Independent learning can cause frustration, anxiety, and confusion for learners (Brown, 1996). Additionally, e-Learning demands self-discipline, self-motivation, and personal study time management since there is no strict deadlines or external encouragement for assignments and reports. (Golladay et al., 2000; Hara & Kling, 2000; Piccoli et al., 2001; Serwatka, 2003).

Unfortunately, Genyo has become a crucial component of the teaching-learning process in today's classroom. However, teachers tend to have issues with Genyo. Teachers struggle to engage disengaged and unmotivated students. Motivation is crucial for e-learner's performance and learning, and lack of motivation can hinder their progress (McKeachie, 2002; Tobero 2019).

Another problem revealed is that some teachers lack tech-savviness and struggle to use the LMS. This hampers their ability to fully utilize it and creates a barrier to effective digital teaching. Tech-savvy teachers can create a positive learning environment and bridge the technological gap between students and teachers (Pang-an, et al., 2022). So, if teachers resist embracing technology, it hinders success with the LMS and may lead to learning gap.

By utilizing Genyo in asynchronous classes, teachers cannot give immediate feedback which is crucial for effective learning (Markovic, 2022). Immediate feedback boosts confidence, motivation, and achievement by prompting students to reflect and adjust their behavior. Without instant feedback, students become anxious and frustrated, unable to resolve issues promptly or receive personalized input. This leads to decreased satisfaction, motivation, and engagement in activities and homework.

A study conducted by (Baraquia, 2019) about the implementation of Genyo e-Learning has a positive result that the implementation of GENYO e-Learning is successful and effective. There are some issues with Genyo, though, including the average use of the online learning platform by teachers, internet access, the functionality or upkeep of computers and other relevant resources, and increased support from the Learning Integration Specialist (LIS), who is crucial to the progression of learning. Additionally, there are time restrictions when creating lesson plans for teachers.

The study of Baraquia (2019) about the implementation of Genyo e-learning found that it was successful and effective. However, there are some issues identified, such as average use by teachers, internet access, computer functionality, resource maintenance, and the need for increased support from the Learning integration Specialist (LIS). Teachers also face time restrictions when creating lesson plans. Through online learning management systems, specific issues and problems occur. The problems mentioned above have one common denominator, which is Genyo.

Capacio's (2021) study "Improving Mathematics Achievement in the New Normal Education System Using Genyo e-Learning" revealed that using Genyo e-Learning in the New Normal Education system can improve students' Mathematics achievement. The study suggests that more students could reach a Master's level on the Achievement Level Scale through the effective use of Genyo e-Learning by teachers.

However, some teachers, particularly new ones, need to be better versed in using Genyo e-Learning. As a result, the researcher is pushing to investigate teachers' perceptions of using Genyo e-Learning in Mathematics, the importance of teachers' utilization of Genyo e-Learning, the problems/challenges encountered by the teachers, and their suggestions for improving the learning process using Genyo e-Learning in Mathematics. It is the offered learning management system of choice in one of the private schools in Pagadian City.

Framework

A basic understanding of learning theories can create lessons that enhance learning. This knowledge enables us to justify the "why" behind our instructional decisions or what and how we teach.

One of the theories that support this study is the Online Collaborative Learning (OCL) theory proposed by Linda Harasim, which focuses on utilizing Internet resources to create collaborative and knowledge-building learning environments. This theory aids in utilizing Genyo e-Learning to make teaching-learning feasible and practical. It focuses more on how students work collaboratively in solving problems through the teacher's help as a facilitator (Harasim, 2012).

Another theory is the Student-Centered Theory, which has a basis on constructivist learning principles where knowledge is constructed mainly by the teacher and the students rather than transmitted directly from the teacher to the students, creating a conducive learning environment in this pandemic (Garret, 2008). Additionally, this argument backs up the notion that students decide not just what to study but also how and why it might interest them (Rogers, 1983). Additionally, learning is more meaningful when students expose to material pertinent to their needs and interests. Additionally, when they actively participate in generating, comprehending, and relating to knowledge (McCombs & Whistler, 1997). Genyo is utilized as learning material due to online learning to complete activities and achieve the intended learning results (Bradley, 2021).

OBJECTIVES:

This study explored teachers' perceptions of using Genyo e-Learning in Mathematics. The study answered the central question: How does Genyo e-Learning help the teacher to be more effective and meaningful in teaching Mathematics?

Specifically, this study answered the following questions:

1. What are the teachers' perceptions of using Genyo e-Learning in Mathematics?
2. What is the importance of teachers' utilization of Genyo e-Learning in Mathematics?
3. What are the problems/challenges encountered by the teachers in using Genyo e-Learning in Mathematics?

4. How do teachers manage their encountered problems/challenges using Genyo e-Learning in Mathematics?
5. What are the teachers' suggestions for improving the learning process using Genyo e-Learning in Mathematics?

METHODS AND PROCEDURES

This study employed a multiple-case study design utilizing an interview guide questionnaire. The gathered data shall be organized systematically to draw accurate conclusions from the participants.

Multiple-case study or collective design (Duperos et al., 2010) is a case study research in which several instrumental bounded cases were chosen for case study research to obtain a deeper grasp of the phenomena than a single case can provide. This study provides a holistic and in-depth explanation of Mathematics teachers (JHS and SHS) utilization of Genyo e-Learning.

The Case Study methodology by Sharan B. Merriam received attention in this study. Sharan B. Merriam, a University of Georgia adult education professor, is an expert on adult learning and the principles of adult education. The chosen model has particularistic, descriptive, and heuristic features (Merriam, 1998). It is particularistic since it concentrates on a particular circumstance or phenomenon. It is descriptive because it aims to comprehensively describe the phenomena that were the subject of the investigation. This study used a variety of data sources to create its in-depth descriptions.

Additionally, this study is considered heuristic, in the way, that it enlightened readers' or other researchers' comprehension of the issue under study. The model used a series of steps, including conducting a literature review, developing a theoretical framework, identifying the research problem, and formulating standards for crafting and honing research questions for data collection. Honing research questions for data collection such as asking pertinent questions, probing, using interview guides, setting clear objectives before the interview, consistently interacting with the interviewee, recording and evaluating data, and selecting the sample through a Qualitative Purposive Sampling. In the said model, data triangulation was emphasized as a strategy to enhance validity. Data sources are triangulated to determine how facts, interpretations, and perceptions converge, ensuring the validity and reliability of the study (Hammersley, 2008).

One of the private schools of the Division of Pagadian City served as the site for this investigation. The study preferred private schools as a source of research participants since they subscribe to the LMS, which is the Genyo e-Learning system.

The study participants were the Junior and Senior High School Mathematics teachers of one of the diocesan schools in Pagadian City. Three (3) Mathematics teachers are coming from the Junior High School Department, and two (2) Mathematics teachers are coming from the Senior High School Department. Selected five (5) students from STEM 12C are also used as participants to support this study.

Table 1
The Teacher Participants for the Interview (Case 1)

Participants (Teachers)	Years of Service	Codes Teacher Participant (TP)
Teacher A	8	TP01
Teacher B	1	TP02

Table 2
The Teacher Participants for the Interview (Case 2)

Participants (Teachers)	Years of Service	Codes Teacher Participant (TP)
Teacher C	5	TP03
Teacher D	½	TP04
Teacher E	½	TP05
Teacher F	8	TP06

Table 3
The Student Participants for the Interview

Participants (Students)	Years Enrolled	Codes Teacher Participant (TP)
Student A	2	SP01
Student B	2	SP02
Student C	2	SP03
Student D	2	SP04
Student E	2	SP05

The precise data required for this investigation were generated by carefully choosing the participants. Focus group discussions were utilized while conducting interviews to control the number of participants in this study. Due to the limited number of participants, there are now three (3) groups: one for the teachers of Junior High School Mathematics and one for the

teachers of Senior high School Mathematics. Another group of students was also involved and stood as the second data source.

The instrument used to gather the data for the study was the interview guide questionnaire for teachers and students. The questionnaire was divided into four (4) categories. The first category was all about the preliminary questions, the second category was the engaging questions, the third category was the exploratory questions, and the fourth category was the exit questions. It was composed of (11) questions.

Experts in the area of Mathematics was the one who tested the validity and reliability of the questionnaires.

The researcher obtained a preliminary process in the data gathering procedure by asking for official permission and approval for the study's conduct from the institution's School President in allowing this study. After the approval, the researcher wrote a letter of request to the school principal of Junior High School and Senior High School to conduct the study. After the two-school principal's approval, the researcher requested an endorsement from both principals. After the endorsement, the researcher informed the individuals and asked for their written consent through a letter. For the students, the researcher wrote a letter to their adviser then after the adviser's approval, a letter of consent was given to the participants. Right after the participant's approval, the researcher conducted an interview session. A focused group discussion was utilized to manage the participants. This study's approach to data analysis involved a detailed analysis of the interview transcripts.

The participants' responses were examined as the first stage of the sequential process, and any highlights or novel ideas were noted. Then, their answers were rechecked and coded. As the process continued, each recent interview was compared to the previous one so that the researcher could add questions that emphasized the use of organizational mission in the information-seeking process.

After the interview, the data collected were organized to support plausible explanations of the information-seeking process. For these cases, reviewing data and discovering what intervening conditions could explain the specific differences in their responses will be necessary.

Throughout the analytic process, multiple perspectives will use to interpret data and to provide theory triangulation. Data triangulation will obtain from the respondents themselves, which came from two separate groups of different departments. As an ongoing check, the researcher will review to look for evidence contrary to the norm. Finally, the thesis adviser will check the study participants' responses to confirm the study's conclusions and to guard against the possibility of the researcher's bias and creativity.

RESULTS AND DISCUSSION

Perceptions of using Genyo e-Learning in Mathematics

In research sub-question 1, what are the teachers' perceptions of using Genyo e-Learning in teaching Mathematics? It revealed that the research participants from Case 1 (TP01&TP02) had perceived Genyo e-learning similarly. Participants' perceptions contain the understanding, functions, utilization, and purpose of Genyo e-Learning.

Understanding

Understanding refers to the knowledge and capacity to assess a particular circumstance or topic (Brittanica Dictionary, 2022). Participants of the study shared their thoughts about Genyo e-Learning. They said:

"Genyo e-Learning is an electronic way of learning. It's a platform for online learning for the students who will learn their topics, lessons in the different fields of subjects".TP01

"I think for me ang genyo e-Learning kay mura siyag alternate social platform like google classroom pero medyo personalized lang siya or like gidala nga brand sa SCC something ing-ana ang Genyo." [I think for me, Genyo e-learning is an alternative social platform like google classroom, but somehow it is more personalized and a brand that SCC is using.] TP02

Functions

Functions pertain to an action or goal that is natural to or meant for a person, thing, or situation (Oxford Dictionary,2022). Case 1 participants cited some of the functions of Genyo based on their observations. They said:

"Functions of Genyo e-learning? There are lots of functions actually, nuh? You can have your lessons there. You can do quizzes, and there are lots of activities, yes! Assignments! nga imong mabuhay nga ibutang sa genyo in which helpful pod biya kayo ang Genyo sa karon nga generations sa mga bata nga murag ok na sa ilaha karon kay more on gadgets sila unya ang mga bata more on gadgets ilahang kun pwede ilahang tanan nilang buhaton naa sa gadget." [There are lots of functions. You can have your lessons there. You can make quizzes, and actually, there are lots of activities and assignments that you can do in Genyo, which Genyo is very helpful for today's generation because today's students are more inclined to use gadgets.] TP01

"Functions of Genyo? For me, ang function sa genyo kay kanang pagmonitor sa students whether naglantaw ba sila sa imoha pre-recorded discussion or like nag monitor sa ilang classworks, useful pod siya in a way ang genyo." [The function of Genyo is to monitor whether the students watched the pre-recorded discussion. It also monitors classwork. Genyo is very useful.] TP02

When it comes to functions, Genyo has a lot to offer. One of its functions is to cater to the student's needs in terms of providing excitement in learning online since students are more inclined to gadgets nowadays. Teachers can do activities online. They can attach pre-recorded videos where students can review the lessons at home. Participants mentioned some functions of Genyo, like assigning lessons, quizzes, etc. They also noted the monitoring of student's classwork.

Utilization

Utilization is a fancy saying "use" (vocabulary.com,2022). When you utilize something, you use it, whether it is a tool, a skill, or a talent. Case 1 participants shared their insights on how to use the Genyo e-Learning system. They quoted:

"Well, to use genyo, you really need an internet connection to this kay kuan so naa kay genyo account, mo log-in ka then naa ramai mubuhay ug account nimo sa genyo o unsa bana. Dayun maoto aside sa makabuhay kag mga lessons didto nga imong ibutang nga makaopen

pod ang mga bata nga imong e- assign sa ilaha.” [Well, to use Genyo, you need an internet nection. When you have your Genyo account, you need to log in. Then, you can make lessons there so that the students can freely access the lessons you made].TP01 con-

“Paggamit sa genyo kay kuan raman dali raman pod kayo kay igo ramna ka mo log-in sa mga ing-ana mocheck rapod ka if sa students siya nga perspective? Sa akong perspective mo log-in raka like mag-assign raka ug classwork and then mag upload kag file or pre-recorded discussion nga imong ibutang didto selected audience imong makapili sa imong klasi.” [It’s easy to use Genyo since you only need to log in. Then, you will assign tasks like uploading files or pre-recorded discussions which you can select your audiences for your class.] TP02

Talking on how to use Genyo, teachers must have a series of training, seminars, etc., before using the LMS in their class. They need to be knowledgeable to provide the best way of integrating their lessons and activities inside Genyo. According to the participants, to use Genyo, you need an internet connection, then a Genyo account provided by DIWA. Next, you log in, and you can assign tasks to the students in the portal.

Purpose

Purpose means the basis for doing, creating, or existing something (Oxford Dictionary, 2022). Below are considered the purpose of Genyo e-Learning in Teaching

Mathematics based on the participants' experiences. They revealed:

“Para sa akoo, ang purpose sa genyo sa akoo mura siyag technological advancement sa school kay para ma hone pod ang mga students ma-integrate ang technology not just in social media but also in academics.” [For me, the purpose of Genyo is like a technological advancement of the school to hone the students to integrate technology in social media and academics.] TP01

By understanding the participants' revelations of the purpose of Genyo, Genyo e-Learning is made to make the students inclined to the new way of learning, improving their academics in school.

In research sub-question 1, what are the teachers' perceptions of using Genyo e-Learning in teaching Mathematics? It revealed that the research participants from Case 2 (TP03, TP05, TP04, and TP06) had perceived Genyo e-learning almost the same as the responses from case 1 in terms of their understanding, functions, utilization, and the purpose of Genyo e-Learning system. They voiced:

Understanding

“Genyo e-learning is a Learning Management System (LMS). At the same time, it is a tool for blended learning modality for the students where it lessens the role of the teacher in giving instructions but still the implementation of learning is still the same”. TP03

“Supplement siya that will aid the teacher to give further instruction or aside from the classroom discussion pwede pod nimo e- extend si teacher ug additional materials like video and additional problem sets nga pwede niya ihatag dayun, pwede e solve at home at their own pace then to be submitted sa klase na dayun”. [Genyo is a supplementary platform that will aid the teacher in giving further instruction. Aside from the classroom discussion, the teacher can extend additional materials like videos and other problem sets that can be assigned immediately, which they can solve at home at their own pace and then submit during class.] TP06

“Para sa akoo, purpose sa genyo e-learning kay para mo kuan gyud ang mga bata mo-inclined dili lang kay sa gadget sa paggamit gyud. Kabalo sila moexplore sa mga top-made nga e-explore like kun naa nata sa online nga platform so murag mao ni ilang first step sa mga bata nga mo go like kun magka high-tech nagyud ang panahon murag naan a silay introductory nga sa mga software na sila mo abide sa ilahang mga lessons puhon kun maabot man gali ta ana nga time kana nga kuan era nga gadget nalang gyud ang gamiton.” [For me, the purpose of Genyo e-learning is to let the students be inclined on the platform, not only in gadgets but also in their usage. They will know how to explore those top-made features in the online platform. The first step of the students is to know the introduction of the software abiding their lessons in the future when we all use gadgets of the traditional anymore]. TP01

Based on their responses, they considered Genyo a supplementary platform that helps teachers minimize their work inside the classroom while maximizing their materials and activities in the portal.

Functions

“..... to follow up/ evaluate asa na sila sa ilahang process of learning even though dili na dili personal but still they can implement the instructions, procedures, and the rules which are needed in the implementation of the lesson.” [Function of Genyo is to follow up/ evaluate where they are now in their learning process. Even though not in person, they can still implement the instructions, procedures, and rules needed in the lesson's implementation.] TP03

Based on the responses of TPO3, we can appreciate the functions of Genyo in implementing instructions and lessons that will aid in the teaching-learning process.

“Every student has their own account then e open nila ilang account para makagamit sila sa Genyo dapat naa kay internet dayun eopen nimo ang mga assigned tasks sa teachers sa point of view sa students. In the point of view of the teacher also on how to use Genyo ahm you will use it on creating lessons like mag create ka ug newlesson package inside the lesson package magbuhat kag videos magbutang ka ug kanang prepared nga slide presentation or pwede ka mag link diadtu ug mga websites para as serve as your support or reference sa imohang topic so ing-anaon nimo siya paggamit sa Genyo imo siyang e utilize ang online ang internet in a way nga makasupport siya sa imohang lesson.” [Every student has an account. They will open it so that they can access Genyo. It needs an internet connection. Once you are in the portal, you can open your teacher's assigned tasks from the student's point of view. From the teacher's point of view on how to use Genyo, you will use it to create lessons like mag create ka ug new lesson package. Inside the lesson package, you can make videos and attach your slide presentation or links and websites that serve as your support or reference in your topic. That's the way how to use Genyo. You can utilize it online in a way that can support your lessons.] TP03

Utilization

Case 2 participants explained the utilization of Genyo e-Learning like the Case 1 participant mentioned that it must have an internet connection, then you will have an account. And after that, you can do what you like inside the portal. Using Genyo is easy and fun.

Purpose

“Ako as a teacher, ma lessen akoang teacher as a nga e spend inside the class instead of hatag tanan. I can extend all of them through Genyo para ma lessen akoang interaction. Then, if there are tasks nga dili kaayu maapas, they continue that one in their home, and the Genyo man gud kay I can update them through it. One feature is the announcements kun unsa ilang kulang and then dili man gud na siya basta2 mawala didtu butangan nimog deadline and then in that case murag matransfer naku instead nga sa classroom pwede naku ma extend sa Genyo akoang trabaho.” [As a teacher, I can lessen my time spent in the classroom. Instead of giving everything to them, I can extend some activities in Genyo. Then, if there are undone tasks, they can continue that in their home. And also, through Genyo, I can update them anytime. One feature is the announcement where I can post about their lacking activities, which cannot easily vanish. I can put deadlines where I can transfer learnings from the classroom. In that case, my work can be extended to Genyo.] TP05

By understanding its purpose in response to TP05, we can say that Genyo provides what teachers need in this modern world.

In research sub-question 1, what are the teachers' perceptions of using Genyo e-Learning in Mathematics? Student participants voiced their insights on the teachers' utilization of Genyo e-Learning. They revealed that teachers are capable of using Genyo e-Learning in teaching Mathematics.

“Yes, Maam! They are capable”. SP01, SP02, SP03, SP04, SP05

In addition, they said that teachers' lessons in Genyo are organized but sometimes need thorough explanations, especially in Math (referring to the pre-recorded discussion).

“Kuan maam hatag ug activities.” [Giving of activities]. SP04 *“Para sa kana bitawng mga lagyog balay makatoon pod bitaw sila gihapon maam pero nindot jud diri.”* [So that, those students who live far away from school can study their lessons but, it is nicer if they are in school physically]. SP03

“Organized lessons, but sometimes needs thorough explanation, especially in math.” SP02

Moreover, regarding how teachers utilize Genyo e-Learning, they quoted that teacher gives activities and lessons where those students far away from school can study their lessons because they can access Genyo anytime, anywhere. Cigaral (2021) supported that teachers can also alter the program to add to their lesson plans and use efficient teaching methods that are appropriate for the needs of their students. Parents can also track their children's academic progress and provide study advice as the program is available 24/7.

Teachers' perceptions about Genyo serve as a guide on what Genyo is, how to use that LMS, how it helps teachers, etc. On the other hand, students' responses help explain better what the teacher is doing inside the portal and if they can use that platform to effectively integrate lessons that cater to students' needs in these modern times. Teachers' attitudes toward modern education significantly influence students' ability to learn, retain, and apply the knowledge, attitudes and abilities necessary to alter their impressions of the LMS (Kiariea, 2016).

Importance of Teachers' Utilization of Genyo e-Learning in Mathematics

In research sub-question 2, what is the importance of teachers' utilization of Genyo e-Learning in Mathematics? Case 1 (TP01 & TP02) includes the connection, usage, features, and the best LMS.

Connection

Connection refers to a connection or affiliation between two things, whether they be people, things, or ideas. Participants in the group discussion shared the following:

"Yes. To be honest, dili gyud ko well-versed aning Genyo kay less kaykog participation sa mga orientations ani nga mga seminars ani nga Genyo dayun need pajud kog room for improvement sa pag-explore aning Genyo e-learning." [Yes. To be honest, I'm not well-versed in Genyo because I participate less in orientations and seminars. I need some room for improvement in exploring Genyo e-learning.] TP01

"... Teacher ko ani nga school and then a lot of teachers are required to use Genyo man, so we are strictly monitored as well so that's why makig interact jud mi sa Genyo daily siguro. Yes, ma'am, very well connected, jud ma'am." [Yes. I am very well-connected. I am a teacher in this school where many teachers are required to use Genyo. We are also strictly monitored, so we must interact in Genyo daily.] TP02

One of the participants in Case 1 needs to be better connected because of less participation in seminars and orientations. In contrast, the other participants are well-connected because, according to him, they must use Genyo.

Usage

Usage refers to the action of using something or being used. Participants of the study

"For now, sa akong klasi sometimes ragyud ko makakuan sa genyo maka-access kay kun pwede as much as possible face-to-face ragyud akong e-kuan sa ilaha especially sa atong subject nga math murag lisod kaayu ipakuan wala kayo ko into pre-recorded more on kuan ko akong alternative way kay since math daghan raman pod tutorial nga videos nga naa sa youtube so maotong link rapod akong e-copy dayun e send sa mga bata nga e-assign ebutang sa genyo so maonang seldom ragyud kayko maka-access sa genyo." [For now, in my class, I rarely access Genyo because, as much as possible, I want to conduct face-to-face with them, especially in our subject-math, as it's tough to do it online. I'm not into pre-recorded more on; I'm using an alternative way, allowing them to watch tutorial videos on youtube. I will just post links on their assigned task. That's why I rarely access Genyo.] TP01

"I used genyo e-learning every week kay since karon ga batching man so there's no other way to reach out the students nga katong laing batch so assignan natu sila ug genyo and then adtung nareview pod nadiscussan naku ana nga batch." [I have used Genyo e-learning every week since we have a different batch of students every week. There's no other way to share the information I taught to the various batch with the pupils who weren't in class that week.] TP02

shared:

As stated above, the participants of the study rarely use Genyo. One reason was that integrating Genyo into the class is challenging, especially in Math. Another reason is the

batching of students. The participant said there's another way to reach out to the students. Hence, he must assign activities in Genyo.

Features

Features are distinctive attributes or aspects of something. Genyo has a lot of features. The participants commonly use some features while some are not. They mentioned:

“Ang akong ginakuan kay ganahan ko magkuan sa genyo nga part nga mag-assign kog quiz magbuhat kog quiz kai murag kabalo2x rapd ko ana. Maong quiz kay easy rapod sa atoang part as teacher nga mocheck sa ilahang output sa ilahang outcome kay kung providan lang nimo tanan ang genyo ug answer keys so ang genyo rapoi mo generate ug results sa ilahang for example reports sa ilahang scores.” [I usually use lesson features. What I did in Genyo was that I assigned quizzes. I did my quiz there. Why quiz? It's because it is easy on our part as a teacher to check their output. After all, if you have provided Genyo with your answer keys, it will automatically generate results like reports of their scores.] TP01

“Workspace lang gyud maam ug lesson package mao ragyud na sya. Ako siyang gituyog gamit kay para ahm maview sa mga bata kun kanos-a nila ahm taman kay akong ginabuhat nila maam kay ako na silang ginaassignan ug genyo dayun ilangexpiry mga 2-3 years pa or next year pa so like dugay pa kayo maexpire para maview nila maski mag exam and then also para dili nila makalimtan ug gusto sila moexplore balik separate akong quiz ug genyo. If magpaquiz man gali ko sa personal na.” [Workspace and lesson package. I intently used it so the students could view the deadline of the activities. The expiration date of the lessons will last 2-3 years or next year so that they can't forget it and access it anytime. And also, when they wanted to explore it again. I separated my quiz and lessons in Genyo. I'd do it in a face-to-face class if I wanted to conduct quizzes.] TP02

Case 1 Participants widely used the Workspace, specifically the quiz lesson package. In the quiz feature, inputting the question and answer will automatically generate student scores. In the lesson package, you can view the deadlines for your assigned topics and assessments. That's why they used it since it is their most significant feature. On the other hand, participants cited some features that are not likely to be used.

“Actually, daghan nga part pero like unsa nga mga podcasts nga unsa nga mga ing-ana? Dili kayko expose ana murag kana pod wala pa kayko na expose ana dayun to be honest pod dili pako kabalo mo kuan mugamit usab sa functions ana pero naa ko'y desire makabalo kung tagaan lang gyud nakog panahon.” [Actually, there are a lot of features in Genyo, like podcasts, etc. I am unfamiliar with that one, and I'm not exposed to that. I don't know how to use the other functions of Genyo, but I want to learn if I allocate some of my time.] TP01

“Kato tanan except atong akong gemention mao ragyud to. Like katong quizzes, mga ing-ana mga often times ra kayo tong uban like naay estudyante ng layo kaayu so need assignan mao akong gamiton kadtong mga other parts kai wala najui lain. I want to keep it simple kay mga students dili kayo ma loaded bitaw and then mao rapui nakasanayan nila nga gamiton.” [All features except for those I already mentioned, like quizzes. I often used the other features because some students are far away from school and must be assigned the lessons. I want to keep it simple so that the students will not be loaded with their lessons, as they used to do that way.] TP02

In the above observation, the features least used by the participants are podcasts and all features that were not mentioned on the most features used. One of the reasons is that the participant was not exposed to the other features, while the other participant wanted to keep it simple so that students would not be loaded with their lessons.

Best LMS

Best means the most excellent, effective, or desirable type or quality. Participants of the study specified: Based on the responses, participants considered Genyo as a good e-Learning system but not the best of all LMS. They pointed out their reasons, such as Genyo could be better when talking about numbers because teaching Mathematics needs to be man-to-man for the students to understand the lessons clearly and that it needs the teacher's physical presence. Also, more than the maximum capacity is required to upload recorded discussions. Moreover, time-consuming to inputting symbols/equations.

In research sub-question 2, what is the importance of teachers' utilization of Genyo e-Learning in Mathematics? Case 2 participants stressed the connection, usage, features, and best LMS of Genyo e-Learning in teaching Mathematics. They shared:

Connection

"Well-connected siguro in a way nga since we are teachers in this school. This school is a subscriber of Genyo or the DIWA e-Learning system ma'am kanang Genyo learning system or management system. We have the privilege to use their website, and then so ang website kay genyo.com.ph kay we are given school ID in a way nga mao nату syay technical way to use Genyo. We are given school ID diri sa high school. After that, you will log in using your username and the password every school year kay kada year magdepende sa agreement o sa contract sa unsa nga LMS among gamiton." [Well-connected in a way that since we are teachers in this school. This school subscribes to Genyo or the DIWA e-learning system, the Genyo learning or management system. We have the privilege of using their website, which is genyo.com.ph. We are given school ID in a way that is the technical way how to use Genyo. We are given school IDs here in junior high school. After that, you will log in using the username and password given every school year. It depends on the agreement or the contract of what LMS to use.] TP06 the best because when we talk about numbers in the subject of Mathematics, the students need to be taught man-to-man. If possible, they should be on a tutorial basis. But when we talk about e-learning, Genyo is good since it has features wherein the students can have fun, like games. Unlike google classroom, it doesn't have features like that, more on assigning the lessons only.] TP01

"No. Because since math man, it requires a lot of drills interactions sa students so like drills jud a permeate or dili drills recorded discussion unya unfortunately ang sa Genyo and iyahang recorded discussion kay 100MB ra murag in-ana so like mag-attach2x pakag google something ing-ana Kuti na bitaw kayo lain pa. If magpadrills ko sa genyo, ahm for me lisodan ra gihapon ko kay there are a lot of symbols nga wherein you can save time by writing it directly or personally Diba kay if genyo palang magupload Paka magpicture paka sa symbols or like mag encode for something pangitaon ing ana bitaw maam." [No. Because since math man it requires drills and interactions between the students. Unfortunately, Genyo has only 100 MB capacity for uploading recorded discussions. I find it difficult because there are a lot of symbols wherein you can save time by writing them directly, but in Genyo, you

need to upload pictures of the symbols, or you need to use latex, which is time-consuming.] TP02

“Para sa akoo kay dili pod siya ingon nga best. Digiud pod sya ingon nga best kay sa akoo naa poi maayung kuan si genyo pero dili pd sya best kay kuan kato lagi it talks about numbers man gud ang atoang subject dayun ang mga bata kanang kinahanglan jud na silage e- man-to-man kun pwede e-kuan gyud e tutorial basis sila e one-on-one so dili kaayu ko kuan sa genyo sa atoang subject nga math nga maoy gamiton of all throughout sa atoang semester. Pero kun sa e-learning mayo pod ang genyo naa pod kay murag malingaw rapod ang mga bata kay daghan kaayug mga features nga bag-o sa ilaha like games nga malingaw sila kabalo lang gyud sila mo explore so kana then aside ana ang google meet. ay unsa na? google classroom kay wala ramai kuan didto more on assigning raman.” [I couldn't tell that it's *“Yes! Regarding the utilization, we are required aside nga to give justice to the students. They are paying this as part of their tuition fee kay kuan pod siya; we are connected in Genyo e-Learning because we are monitored with our usage. Every month naa mi kanang monthly usage in different subject areas tapos Makita namo didtu kun unsa nga subject ang taas ug Utilization and speaking of Genyo elearning so well-monitored mi sa amoang usage monthly and at the same time naga recognize kun unsa nga subject ang pinakadaghan ug usage ug kinsa nga teacher ang pinaka daghag usage sa Genyo. Connected jud kaayu. Well-connected.”* [Yes! Regarding Genyo utilization, we are required because aside from giving justice to the students, they are paying Genyo as part of their tuition fee. We are well-connected in Genyo e-Learning because we are monitored with our usage. Speaking of Genyo e-learning, we are well-monitored on our monthly usage. At the same time, Genyo LIS recognizes what subjects have the highest monthly usage and whose teachers have the highest usage in Genyo. Thus, we are well-connected.] TP03

“But not only for students but also for teachers ang activities sa Genyo nga kanang apil ang teachers like Teki-Teki si teacher mga output online nga teachers ang participants.” [But not only for students their also activities in Genyo that involves the participation of the teachers like Teki-Teki Si teacher and other outputs online in which teachers are the participants.] TP03

Based on the responses, teachers clearly stated that they are well-connected in using Genyo e-learning since they are required to use the LMS as they are teachers in the school where the school is a subscriber of Genyo. They also stated that they are well-monitored by the Genyo LIS every month and give those teachers recognition as the top users of the month. Students and teachers' participation also are highly recognized since Genyo has a lot of activities that cater to the skills and talents of the participants. In order to attain learning success, participation in the learning process is used to promote effective learning. (Halimah, 2021)

Usage

“Dili pod siya matawag nga daily maam because of our class schedule but siguro every lesson namu naa gyud siyay integration sa Genyo and so sa isa ka semana siguro four times.” [We cannot say that we use it daily because of our class schedule, but in every lesson, we have integration in Genyo, so in one week, maybe four times.] TP03

“Maximum na siya maam.” [It is the maximum.] TP05

“Magdepende siya sa lesson maam.” [It depends on the lesson.] TP02

Regarding the usage of Genyo e-Learning, some participants said they used Genyo mostly once a week. But others said it depends on the lessons. On the features that they usually and do not typically use, they specified some of the features. They shared:

“Lesson Package” TP04

“Lesson Package, Quiz” TP04

“Announcements, shared blog” TP03

“Forum. Very effective ang forum man gud kay kanang dili man gud parehag understanding tanang bata. Ang forum man gud kay for example naay student nga medyo maayu siya ani nga subject especially math naa kay questions diadtu about mathematics dayun makauna to siya nga students then kadtung mga students nga mga medyu naglisod ug sabot mangita silage ideas sa mga una nakasubmit sa forum so effective jud siya.”

[Forum. The Forum is very effective because not all students have the same understanding. In a forum, for example, some students are good in that subject, especially math. Then if you have questions about Mathematics and that student can answer first, the other students who have a hard time understanding the topic can get ideas out from the ideas of the others; thus, it is very effective]. TP03

Like the participants of case 1, they commonly use the lesson package and the quiz features. The difference is that in case 2, participants also used the announcements, shared blog, and forum. However, they also highlighted the characteristics that were rarely used. They cited:

Above mentioned features are not widely used because they do not apply to the subject area. Genyo features can be used in all different subjects, but every subject has only a specific feature needed to integrate.

“E-portfolio. Not applicable in our subject area.” TP03

“E-portfolio.” TP04a

“Forum” TP05

“All except those we haven’t mentioned.” TP06

Best LMS

“Of all the LMS I’ve experienced, only Genyo is the best. Aside sa we are used to the features kuan pod siya kanang user-friendly at the same time kun naa mi concerns naa mi gikalisodan gikalibgan naa mi LIS as part siya sa Genyo nga maka-tap dayun mi niya if ever naa mi queries about Genyo.” [Of all the LMS I’ve experienced, only Genyo is the best. Aside from being used to the features, it is also user-friendly. We have LIS as part of Genyo, so we from being used to the features, it is also user-friendly. We have LIS as part of Genyo, so we can tap her anytime if we have questions, queries, etc., about Genyo.] TP03

During the pandemic times, many LMS exist. Still, according to TP03, Genyo is the best because of the significant features, and it is also user-friendly, which refers to a simple to use and comprehend LMS. There is also a LIS that they can ask for assistance anytime if some problems exist regarding Genyo.

In research sub-question 2, what is the importance of teachers' utilization of Genyo e-Learning in Mathematics? Students' participants shared some essentials for teachers to use Genyo e-Learning in teaching Mathematics. They said that concerning the utilization of the teachers, the teachers use Genyo e-learning once a week.

“By week.” SP03

“Once a week.” SP02

Talking about the features used by the teachers, they cited some commonly used features, such as lessons and activities (lesson package).

On the other hand, they specified those features that are not commonly used like, summary page and survey.

Students gave responses about Genyo as the best LMS. They revealed some significance of Genyo to their learning.

“Yes. Genyo is the best.” SP05

“Quiz.” SP01

“Naa kanang chapter maam. Naa nay nakabutang lesson tas activities. Nausa na.” [There's a chapter where there's already a lesson and activities.] SP02

“Necessary.” SP05

“Sa Genyo maam kanang sa lesson maam ang katong sa genyo maam diba pwede man ka makamessage pwede raka maka message if naa kay wala nasabtan. Sa mga lessons pod dali ra siya malocate ang kana bitawng aha nga lessons ug sa activity nga among himoon.” [In Genyo, in the lesson you can message if you have queries. You can also easily locate the lessons and activities.] SP02

“Kanang mas madiscipline ang students in terms of kuan sa mga handle sa schoolworks maam kay naa man gui deadline if maabot na sya ana dili nagyud nimo maaccess. Unlike sa google classroom, makapasa pero libog usahay kai kanang diba naa man gyuy deadline ang mga teachers nga ginahatag usahay kanang magsalig ba ang mga students pagmaabot na ang deadline dili gihapon mawala makapass gihapon sila ingana nga style.” [The students will be disciplined in terms of handling schoolworks because there's a deadline. It will expire once the deadline is off. Unlike google classroom, it's confusing though there's also a deadline there but the students can submit beyond the deadlines.] SPO3

“Sa akua maam, mas kuan ang genyo dali masabtan kay diba maam naa toy completed tapos kaning nakacategorized na bitaw daan maam. Dili mi maglibog kun nahumana nami ato kai makacomplete task man dayun maam tapos maaware kun unsay mga lessons nga padulungay pa bitaw.” [For me, Genyo is easier to understand because it already categorized the completed outputs. We are no longer confused about whether we are done with those activities. We will also be aware of the upcoming activities.] SP01

“Kuan siya maam nakahan-ay na tanan maam, dili na angay pangitaon. Uline sa google classroom maam mabalaw pakog pangita.” [Everything is organized, you will not find it

anymore. Unlike google classroom, I'm having the hard time of finding the lessons and activities.] SP05

"Parehas kay SP05, kanang mahibal-an bitaw kun nakatan-aw naka sa lessons or wala mahibal-an kun gatan-aw ang students sa discussion kay naa manay mga times naa poi access kun Kapila sila nag view sa lessons and kapila pod nga time naggamit sap agtan-aw sa videos." [Like SP05, you can know if the students viewed discussions because there comes a time that you can know how many times they viewed the lessons and how many times they watched the videos.] SP02

Based on the above responses of teacher participants, they are well connected to Genyo. They explained how to use Genyo, and some features are commonly used (lesson package, quiz) while some are not. But there's a difference in response to Genyo as the best LMS, and case 1 participants said that it was not the best LMS, while case 2 noted that it's the best LMS they had experienced. On the other hand, students support the teachers' responses mostly in case 2 participants. They only differ in regarding Genyo as the best LMS.

In this study, the participants' connectedness to Genyo, Genyo's features, the frequency of teachers' usage, and the teachers' response to Genyo as the best LMS play a vital role in the importance of utilizing Genyo e-Learning. A study by Baraquia (2021) shared the importance of using Genyo e-Learning. She said that the program's multimedia learning environment engages students in the subject matter and enables them to learn more about it through games, interactive exercises, and online resources than they could in a book.

Challenges Encountered in Utilizing Genyo e-Learning

In research sub-question number 3, what are the problems/challenges encountered by the teachers in using Genyo e-Learning in Mathematics? Case 1 (TP01 & TP02) commonly pointed out some internal issues on the features of Genyo, which include (1) the difficulty in assigning activities to sit-in students, (2) the capacity of videos to be uploaded, and (3) the difficulty of inputting formulas and equations in the quiz features.

Genyo has groups of students where you can assign your lesson to the groups, but those irregular students (sit-ins), are not part of the group since the group made-feature is only for regular students in every section. TP02 said:

"Ang sa akoang naencounter kay katong mga sit-in bitaw. Ang mga sit in kai dili na sila apil sa among groups so like magpa-assign pa sila tagsa2x hasul kayo and then usahay pod like masirad-an na ang mga bata kay ge-assign nalang pod nimo sila balik ana bitaw kutihan kayko." [What I encountered were the sit-in students. They are not included in the groups in Genyo. As a result, you need to assign the lessons one by one. That's why it is a hassle for me.] TP02

Another one is that more than the capacity of videos to be uploaded is needed, but Genyo allows 100 MB only per video, and most of the videos uploaded by the teachers are more than the maximum capacity. TP02 also said:

"Dayun maopod to gamay ra kayo mb ang capacity ang pwede nimo e upload nga videos so like dili ka ka discus ug taas2x so maoto." [The maximum MB to be uploaded is not enough. Some video discussions can't be uploaded due to a lack of capacity.] TP02

Also, teachers are having difficulty inputting formulas in equations on their quiz in Genyo because you can input formulas/equations. You must know the latex codes of the different formulas/equations. TP01 stated:

Some problems/challenges may hinder the teaching, but according to the participants, the challenges they encountered do not hinder them. They stated:

"Dili gyud noon. Small ra kayo to nga part sa Genyo kay pwede raman pod nimo sya nga lain nga way gyud pod mo." [No. It's not. It's just a small part in Genyo because you can find alternative way to address the issues.] SP02

"Lisod gyud pod na e share sa mga bata especially nuh nga wala pay experience or wala pagyd pod na expose ana. Lisod man gali sa atoa nga naa tay gamay nga exposure sa pagkuan ug latex unsa nalang kaha sa mga bata murag lisod gyud pod siya."

[It's hard to share it with the students, especially if they don't have experience or are not exposed to the LMS. We, teachers, are experiencing difficulties though we are exposed to latex. How much more to students? Maybe, it's hard for them] TP01

"Kun mag- input ka ug mga ok rag mga in words tanan kay sayun ra mag-input ug mga letters kai sa duha magkuan man gud mga equations sakto bana ana so murag maggamit pakag kanang latex dayun dapat kuan ka kabalo ka mukuan sa latex kai murag coding2 pod na para iyahang ukuan sa kana mukuan pod ka e learn pa para easy nalang sa imoha mubuhat quizzes or assignment or lessons diha dayun ibutang sa genyo." [It's okay to input words in Genyo because it's not hard to input letters, but if it's equations, you need to use latex which requires knowledge about that matter since it involves codes. You need to learn about latex, so you will not find it difficult to make Mathematics quizzes, assignments, or lessons.] TP01

"Isa maam is kadtung encoding sa mga symbols. Mao to siyay pinamain jud nga struggle as Math teachers nga like the square root. Sigma." [One of the problems is the encoding of symbols. That is the main struggle for Math teachers and the encoding square root, sigma, etc.] TP06

"Mga signs and even exponents and fractions." [The signs and even exponents and fractions.] TP03

"If ever man gud pod image ang imong eupload instead of typing the formula or the equation if ever pictures plain by screenshot natu ang tendency pod ana kay magloading ang picture dugay nila ma-access especially maam nga maglisod sa internet connection mas magstruggle na noon silag view sa quizzes or sa formula or sa pictures labi nag picture ug encoding of formula." [If ever you upload the image instead of typing the formula or the equation, and if ever pictures by screenshot, there's a tendency that picture cannot be viewed easily, especially if they have problems with the internet connection. Viewing the quizzes and formulas is more complex, especially if they are uploaded pictures.] TP06

In research sub-question number 3, what are the problems/challenges encountered by the teachers in using Genyo e-Learning in Mathematics? In case 2, some responses are identical to the first case, such as inputting/encoding formulas/symbols/equations. They shared:

Another problem is the low of internet connection because not all students have access to a higher speed connection.

“Also, not all students can access Genyo sa ilahang balay kun dili nimo dal-on diri naa jui estudyante nga wajui mabuhat sa Genyo.” [Also, not all students can access Genyo in their homes. If you do not bring them here (ComLab), some students have no output in Genyo.] TP05

In addition, the other problems are the duplicated outputs. Teachers doesn't know if the students just copied the answers of his classmates or not.

“Akong concern kai ang assessment nga part dili ko ka kuan sa pag-answer nila kun nangopya ba sila sa lain or gitagna or dili pod ko ka kita gyud nga sila kun ako as a teacher ganahan ko makakita nga sila gyud ang gabuhat gyud.” [My concern is the assessment part. I don't know if the students are copying their classmates' answers or guessing. As a teacher, I love to see them doing their activities.] TP04

“Pero kung mag kuan gyud mag answer sila diri sa Genyo lab Makita gyud namu.” [We can know if they will answer here at the Genyo laboratory.] TP03

Different problems may exist as the participants use Genyo e-Learning, but they said it does not hinder their teaching since they can find ways to mitigate those challenges. They revealed

“No. kay nagpadayun man gihapon ang learning maam.” [No. Because the learning never stops.] TP01

“Mapangitaan rapod siyag pamaagi.” [We can find ways.] TP02

In research sub-question number 3, what are the problems/challenges encountered by the teachers in using Genyo e-Learning in Mathematics? Students responded to the problems they had observed with their teachers in using Genyo e-Learning to teach Mathematics. They said:

“Lack of Equipment (refers to gadgets).” SP01

“Genyo, ang discussions magsige rag loading usahay maam dili ko kita sa mga discussions magloading raman gud siya maam kuan ra siya sa Genyo.” [Genyo. Sometimes, I cannot see the discussions because it will just load in Genyo.] SP02

“Dili masabtan” [imcomprehensible.] SP04

“Kay mausab ang definition kun dili namu malantaw ba sa genyo.” [They definition will change if you will not see it in Genyo.] SP05

As a result, they considered it a challenge for teachers because students can't understand the lesson, especially if a low internet connection occurs.

Teacher participants shared some internal issues with the features of Genyo, the difficulty in assigning activities to sit-in students, the capacity of videos to be uploaded, the difficulty of inputting formulas and equations in the quiz features, the low internet connection, and the reliability of the answer. But, they did not consider these problems as a hindrance to their teaching because those problems are just a tiny part compared to the advantages offered by Genyo. In contrast, students pointed out some problems like needing more equipment and low internet connection. They considered it a hindrance since they sometimes could not understand the lesson.

Graphy (2022) pointed out some issues, but he highlighted one of the issues that using LMS needs a good internet connection for online learning. It impedes the students' growth because

there is only one way to succeed in online education with a reliable internet connection. Furthermore, due to the poor internet connection, students find it challenging to resume their studies from where they left.

Ways to Manage the Encountered Problems/Challenges in using Genyo e-Learning in Mathematics

In research sub-question 4, how do teachers manage their encountered problems/challenges using Genyo e-Learning in Mathematics? Case 1 explained that to address those problems, they did self-exploration and innovation. They shared:

“More on nagresearch gyud ko nagkuan kog mga tutorials/videos unsaon paggamit unsa may kuan ani buhaton nga code unsa nga iyang equivalent nga mao ni iyang kung e-run nato mao ni iyang mogawas let’s say kung e program ba kanang kana magsearch ko magtan-aw ko mga tutorial videos.” [I did some research. I looked for tutorial videos in youtube on how to use and what codes are you using in to have an equivalent or an outcome when you run that codes into quiz.] TP01

“Sa akong pod nga part murag nakatabang jud siyag dako kay ikaw gyud mismo nakalearn ka kay naningkamot man ka maningkamot makabalo gyud ka kai unsaon man nimo pagtudlo sa mga bata kon ikaw mismo naglisod so maong daku2 siyag katabang nako nga magkat-on gyud dapat kay para naa koy mashare sa mga bata nga sakto pod nga pamaagi.” [In my part, I think it helps a lot since you will be the one to discover so that you can share your knowledge to your students. How can you teach them if you find it hard to understand about that? It helps a lot to me to must learn so that I can share to them the ways on how to use it.] TP01

Self-Exploration is "looking into your thoughts, feelings, behaviors, and motives and asking why." According to Ryan Howes, Ph.D., "it's looking for the roots of who we are- answers to all the questions we have about [ourselves].

“Akong ing-ana nga strategies katong like katong regarding sa video nga dugay naupload akong ginabuhay nagama kog youtube channel wherein akong ginaattach is ang link nalang sa akoang video so maoto siya and lain pa kay if naa siyay difficulties ingnon nalang naku sila nga didto nalang ta sa class if na moy na watch sa Genyo e discuss nalang naku sa class if nay difficulty so ana nalang maam.” [Regarding the issue of uploading videos. It takes time that’s why I made a youtube channel wherein I will just attach the link to the resources. If the students will have difficulties regarding the videos I will tell them that I will answer it during our face to face class so that it will be clear for all of them.] TP02

“Makahelp siya sa akong in effectively managing the unsa gali na siya? Ang difficulties nuh? In a way nga I am able to think flexibly maam nga moadjust kun unsa rayud diha so meaning I have to go beyond pa ana in order to find ways nga mas mapadali sa mga bata maam ang ilahang ang akong kaya nga e cater nga service sa ilaha.” [It helps me in effectively managing in a way that I am able to think flexibly to adjust my capabilities so meaning I have to go beyond in order to find fast ways to cater services to the students.] TP02

Being innovative/creative is essential, especially if you are a teacher—the need to be creative in terms of using tools to discover something new. TP02 made a youtube channel to address the issue of the capacity of uploaded videos. With that, he found a way to his problems.

In research sub-question 4, how do teachers manage their encountered problems/challenges using Genyo e-Learning in Mathematics? Case 2 includes seeking technical support from DIWA and LIS assistance, bringing the students to the Com Lab, and being innovative and creative.

Asking for help means you cannot do it on your own. The need for assistance may help you to discover something new. With the DIWA LIS assistance, teacher participants were not anxious when they encountered problems in utilizing Genyo.

Students can learn, use software, complete assignments, and communicate with teachers through computer laboratories—the ability to gain digital skills necessary nowadays. Having problems with the internet connection is not a hindrance because the computer laboratory is the solution. TP04 advised her students to be in the laboratory if they had a low internet connection to do their assigned tasks.

“Mapangitaan ra siyag pamaagi maam kai last time ge raised namu na siya na concern sa technical support sa Diwa dayun napangitaan nilag pamaagi maam nga from word e copy nimo ang formula or equation dayun pag paste sa kuan macopy najud siya maamdayun naa lang kai e delete nga part pero e adjust pod nimo ang formula or equation kanang nabuhatan ra siyag pamaagi. Pero kana pod ang challenge kung aware or expert pod siguro or kun baga naan a sa medium level ang kuan sa teacher. Medyo kadtung kauban naku sauna sa Math maglisod sya ug kuan mao lagi tongpicture ang ikuan.” [We can find ways because last time we raised that concern to the technical support from DIWA, they found ways like from word, you will copy the formula or question then just paste it, but some parts will be adjusted like the formula or equation. The challenge here is that the teachers should be aware, or they should be experts, or they are in the medium level of using Genyo. My colleague, way back, had difficulties inserting pictures of formulas or equations in Genyo.] TP06

“So far, naaddressed na naku sa LIS like how to type the equation and they have found ways. Not all but mostly napangitaan ramn pod ug pamaagi.” [So far, I have already addressed the LIS on how to type the equation, and they have found ways. Not all, but mostly they found ways.] TP06

No activities should be done at home. Students must do it in school said by TP04.

In research sub-question number 4, how do teachers manage their encountered problems/challenges in using Genyo e-Learning in Mathematics? The students shared their thoughts based on what they had observed. They said:

“Akoang coping strategies kay kuan nalang gyud nga akoang mga assessments dili naku ginapabuhay sa balay diri lang gyud siya. Mao na akong concern sa Genyo nga makakita sa ilahang answer.” [My coping strategy is not to let my students make their assessments at home; instead, they will do them in school.] TP04

“Being innovative and creative. Diha jud machallenge imohang pagka teacher kung to look for ways nga ma-utilize ang Genyo at the same time dili compromise the learning sa mga bata. Challenge jud siya but wala kay choice but to provide what's best for the students.” [Be innovative and creative. That's the part where you will be challenged as a teacher to look for ways to utilize Genyo while not compromising the learning of the students. It's a challenge, and you don't have a choice but to provide what's best for the students.]TP06

According to Cabrera (2021), if you want to overcome the difficulties you can experience when utilizing a learning management system, you need a platform that will genuinely support you. You could choose the ease of outsourcing an LMS if managing one seems too much work. LMS vendors are more knowledgeable about the system. As a result, they may relieve you of some burdens, including onboarding, and even offer thorough technical assistance.

Suggestions for Improving the Learning Process using Genyo e-Learning in Mathematics

In research sub-question number 5, what are the teachers' suggestions for improving the learning process using Genyo e-Learning in Mathematics? Case 1 suggested more follow-ups, orientation, seminars, and assistance from experts that can assist them individually when they have activities. Another participant said he has no suggestions since he decided to stick to what has been implemented.

“More on kuan gyud follow up sa mga bata kun asa sila naglisod e follow-up sila nga nay orientation ani or seminars ba kaha or hands on nga kuan naa gyuy mo hands-on nila nga expert aning genyo.” TP01

“For me, wala na kayo kai akong gedecide nga buhaton kai nistick nalang gyud sa pamaagi kai it's easier that way.” [I don't have anything because I just stick to following the ways implemented. After all, it's easier that way.] TP02

Follow-up is essential, especially if most students need help understanding the lessons integrated by Genyo. Orientations and seminars are also necessary to enhance their learning of the LMS and to discover answers to common problems they have encountered. LIS is considered one of the experts in Genyo, and they cater to the student's difficulties with the LMS.

In research sub-question number 5, what are the teachers' suggestions for improving the learning process using Genyo e-Learning in Mathematics? Case 2 suggested features such as class record, plag scanner, and sufficient built-in materials to be added in Genyo LMS.

“Class record.” TP03

“Automatic plagscan. To know the students who have the same answers.” TP03

“Yes kana maam kai akoo man gung teaching method maam kay nagalantaw gyud ko kun unsaon nila pag-answer maam. Tagsa-tagsaon gyud na naku magsuroy suroy gyud ko dili gyud naku na sya mabuhay sa Genyo.” [Yes! That's it. My teaching method is I wanted to watch how they answered the problems. I watched them one by one, which I cannot do in Genyo.] TP04

“Built-in Materials. So far nagdiscussion tong mga teachers naa siguroy mga built-in materials. Although sa uban subjects naay built in so focus pod sa Genyo murag sa Math is dili tanan or naay selected topics nga kulang siguro ug learning resources.” [Built-in Materials. So far in my discussion, some subjects have built-in materials in Genyo, but in Math, not all topics. Only selected topics can be seen in Genyo. Maybe they need more learning resources.] TP06

Suggested features such as a class record in Genyo are inevitable in keeping the records and generating students' grades quickly. Plagscanner may help avoid students' laziness in doing their school work and avoid cheating. The teachers and students need sufficient built-in materials on a specific subject area to have additional references for the topics.

In research sub-question number 5, what are the teachers' suggestions for improving the learning process using Genyo e-Learning in Mathematics? Students gave tips that are somehow inevitable for teachers' improvement.

“In general na maam, parehas pod atong giingon ni SP02 diba mopause2 man sa Genyo so in that time muhatag kag examples. For example, try to solve it yourself, tapos pause kag kadjot. After mapause maam, imong dayung answeran ang examples. For that way man gud maam makaengage man gud ang students sa video sa lessons ing-ana”. [In general, like what SP02 said, give examples when you pause during the discussion in Genyo. For instance, try solving it yourself, then pause for a while. After a pause, provide answers to the questions you had a while ago. In that way, the students can engage in the video lessons.] SP02

“Sa pre-recorded video maam diba diri-diritso ra. Digidud makapangutana ang students while nagplay ang video. Pause lang sa. Time is limited.”

[In the pre-recorded video, there are no interruptions happened. The students don't have the chance to ask questions. Just Pause. Time is limited]. SP03

“Mareduced ang expired activities.” [To reduce the expired activities.] SP04

“Kulang ug user entertainments. Unlike sa mga websites nga not malingaw kai inig open naay moanimate or something kay sa Genyo diritso2 raman gud. Understand ramanpod nga kanang for learning raman jud sya kanang unnecesary na. Pero for entertainment nga kanang ganahan mugamit ang students ana nga platform. I suggest naay mopop- up animate something.” [Lack of entertainment. Unlike the other websites, you will have fun. Once you open the website, there's an animation that pop-up. In Genyo, there's none. But it's understandable that since Genyo is for learning, it's unnecessary. But then again, it's for entertainment that the students will be motivated to use the platform. I suggest that there's an animation that will pop up.] SP01

“Kulang ug user entertainments. Unlike sa mga websites nga not malingaw kai inig open naay moanimate or something kay sa Genyo diritso2 raman gud. Understand ramanpod nga kanang for learning raman jud sya kanang unnecesary na. Pero for entertainment nga kanang ganahan mugamit ang students ana nga platform. I suggest naay mopop- up animate something.” [Lack of entertainment. Unlike the other websites, you will have fun. Once you open the website, there's an animation that pop-up. In Genyo, there's none. But it's understandable that since Genyo is for learning, it's unnecessary. But then again, it's for entertainment that the students will be motivated to use the platform. I suggest that there's an animation that will pop up.] SP01

“Kanang sa powerpoint bitaw maam for example maghimo kag upat ka circle kanang naay mga pananglitan maam kuan e click lang siya maam tapos kuan modiritso na sya molocate sa page aron dili na maglisod ang mga estudyante.” [In a powerpoint presentation, for example you will magke 4 circles and then when click that circle it will automatically locate to a page so that the students will not have a problem.] SP02

The researcher identified the following themes and sub-themes to summarize the data that had been analyzed. It includes the teachers' perceptions of using Genyo e-Learning in Mathematics, such as the understanding, functions, utilization, and purpose of Genyo e-Learning. Then, the importance of teachers' utilization of Genyo e-Learning in Mathematics, like the connection, usage, features (commonly used and not widely used), and usefulness of Genyo e-Learning. Next, the problems/challenges encountered by the teachers in using Genyo e-Learning in Mathematics include the difficulty in assigning activities to sit-in students, the capacity of videos to be uploaded, difficulty in inputting formulas, low internet connection, and reliability of students' answers. In addition, the ways to manage problems/challenges in using Genyo e-Learning in Mathematics through self-exploration, seeking LIS support, bringing the students to the Com Lab, and being innovative and creative. Finally, suggestions for improving the learning process using Genyo e-Learning in Mathematics include follow-ups, orientations and seminars, and assistance from the experts in Genyo. Also, the additional features like the class record, plag scanner, and built-in materials.

The coping strategies of the teachers imply that they should learn to ask for LIS support when the problem occurs. This action of the teachers strongly agrees with the theoretical framework of this study, which is the Online Collaborative Learning (OCL) theory, wherein utilizing Genyo e-Learning helps the teachers and students make teaching-learning feasible. The theory focuses on how the participants work collaboratively in solving problems. In Genyo, if teachers and students have problems with the LMS, DIWA has LIS that can help them immediately (Harasim, 2012).

CONCLUSION

Based on the findings of the study, the researcher concludes that Genyo e-Learning significantly contributes to the effectiveness and meaningfulness of Mathematics teaching. Genyo serves as a supplementary tool, offering contemporary learning methods and essential features that meet student demands, resulting in improved learning experiences.

Active engagement with Genyo allows teachers to effectively address students' needs in the modern era of Mathematics education. The study establishes a positive correlation between teachers' connectedness to Genyo, utilization of its features, frequency of usage, and their favorable response to the platform. Additionally, active utilization of Genyo fosters enthusiasm among teachers, as the platform provides regular monitoring, support, and recognition for their participation. Teachers who actively engage in Genyo activities are acknowledged, including being identified as top users. Moreover, teachers perceive challenges encountered with Genyo as solvable issues, appreciating the benefits and effective solutions offered by the platform.

RECOMMENDATION

The following recommendations are made in light of the study's results and conclusions:

- ✓ Teachers must be well-versed in the knowledge and skills required to integrate Genyo in the classroom to ensure that they effectively use Genyo e-Learning. If teachers

have a series of training, seminars, and workshops that address the needs of the students in terms of e-Learning, this will be possible.

- ✓ The schools and DIWA Inc. that use Genyo e-Learning might offer enhanced internet connections so that all teachers and students can use them simultaneously without lag or delay.
- ✓ DIWA may incorporate some features to address the problems of difficulty in assigning activities to sit-in students, the capacity of videos to be uploaded, difficulty in inputting equations/formulas, and the duplicated students' outputs. When students open the portal, they might also add animations to keep them entertained.
- ✓ Copies of this study may be distributed to the principals of private schools who subscribe to Genyo to know teachers' problems/challenges regarding Genyo e-Learning. Additionally, the information in this study may be helpful to DIWA Inc. in enhancing its LMS.

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