GAMIFIED E-LEARNING PLATFORMS AS STRATEGY TO INCREASE STUDENT ENGAGEMENT

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ABSTRACT

The study used gamified e-learning platforms such as Quipper, Kahoot!, and Quizziz as a strategy to increase student engagement in answering the self-learning modules. The gamified e-learning platforms were used to design lessons based on the students' self-learning modules. The participants in this study were the selected students of Grade 7 Friendship class from Mati School of Arts and Trades. Teacher's records reflecting students' grades and attendance during module distribution and retrieval were alarming at some point. A self-assessment tool on student engagement was used to confirm the data obtained through the teacher's records. A descriptive statistic was employed for the analysis of the data. The result showed that 30% of the students were found less engaged, which confirmed the data collected from the teacher's record. Ten (10) students were identified who were crucial to the data collection process who underwent intervention using the gamified e-learning platforms and were interviewed to capture their experience while employing the strategy. Thematic analysis was used to examine the interview results. Themes obtained demonstrate that the utilization of the strategy does genuinely provide students with favorable learning experience. Accordingly, students showed a significant increase in their engagement in answering their modules and even showed improvement in their grades.

Keywords: *Gamified e-learning platform, student engagement, modular learning*

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I. CONTEXT AND RATIONALE

Every school in the country strives to improve access to high-quality education. Teachers, as the primary source of information, are always improving their teaching methods by devising more effective strategies and developing the necessary competencies to enable students to compete and think internationally. With the abrupt shift in paradigm brought on by the COVID-19 Pandemic, the education sector in the Philippines, as well as the rest of the world, is suddenly confronted with an adaptive and transformative task for which no roadmap exists.

The global COVID-19 outbreak has forced educational institutions to suspend classes on campus to stop the virus's spread. As a result, almost one billion students—nearly 98 percent of the world's student population—have been affected by school closures (UNESCO, 2020). The abrupt move from traditional classroom setup to the adoption of various learning modalities presented challenges not only to teachers but, more importantly, to learners. Educators have been pushed to develop new tactics and strategies to engage our learners because of this (Zayapragassarazan, 2020). According to UNESCO (2020), not all teenage learners were able to benefit from these new learning environments, and most of them struggled to keep up with their education and stayed motivated and engaged.

After the first half of the school year 2020-2021, the Edweek Research Center polled students and teachers and discovered that

students self-report poorer motivation and morale by 50% and 49%, respectively, as compared to their motivation and morale prior to the pandemic. We know how low-quality remote instruction affects student success disparities, but we don't know how social isolation, uneven structures, or personal trauma affect student engagement (Toth, 2021). According to a study conducted by Datu and Lizada (2018), well-being has a significant impact on academic outcomes. According to several studies, higher levels of intellectual engagement are connected to higher levels of life satisfaction. Their research looked at how interdependent happiness is associated to better levels of behavioral and emotional involvement, as well as total academic engagement and motivation among Filipino secondary school students.

The level of attention, interest, curiosity, and positive emotional connections that children have during learning, whether in the classroom or on their own, can be defined as student engagement (Sousa, 2020). Dr. Sousa added that engaged students have more motivation to participate in class, enjoy achieving their learning goals, were more likely to persist through challenges in learning. Students who were less engaged, on the other hand, were less motivated to participate in class, did not enjoy attaining their goals, and were more inclined to stop learning when faced with difficulties.

This is supported by the proposed self-determination theory (SDT) of Deci and Ryan (1985), a macro-level theory of human motivation that

tries to explain the dynamics of human need, motivation, and wellbeing in a social setting. According to the theory, everyone has three universal and psychological demands that drive them to act or not act: autonomy (feeling self-governed and endorsed), competence (feeling competent and effective), and relatedness (feeling connected, loved, and interacted). When these three psychological requirements are met, people feel happier, and when they aren't, they feel fragmented, lonely, and reactive. Students are actively motivated to engage in learning tasks when pedagogical design appropriately fulfills these psychological needs (Hsu et al., 2019).

The Department of Education in the Philippines chose the Learner Enrolment and Survey Form (LESF) as the principal enrollment instrument to facilitate remote and drop-box enrolment during the new normal. This form was used to collect the information needed to implement the BE-LCP (Basic Education Learning Continuity Plan). According to the data acquired from parents, 8.8 million prefer modular learning, 3.9 million prefer online learning, 1.4 million prefer educational television, 900,000 prefer radio-based instruction, and 500,000 choose alternative modalities ("Official statement on LESF," 2020). This has prepared the path for the introduction of Modular Distance Learning as an urgent reaction to ensure educational continuity, according to these findings.

During the School Year 2020-2021, research was conducted in Balbalayang National High School (BNHS) and Baguio City National High School (BCNHS) to investigate the obstacles faced by teachers, parents,

and learners in the implementation of Modular Distance Learning. Lack of school funds in the design and distribution of modules, students' struggles with self-studying, and parents' lack of understanding to academically advise their children were all identified as major issues in the study (Dangle & Sumaoang, 2020). Furthermore, a study conducted in Leyte found that students' late claiming of modules, late submission of outputs, failure to indicate the names of students in their answered modules and submitted modules with incomplete answers made it more difficult for teachers to monitor students' performance and impacted the teacher's schedule in checking the modules (Castroverde & Acala, 2021).

In the school context, the Mati School of Arts and Trades, situated in Garcia Avenue, Barangay Sainz, City of Mati has 1,317 enrolled students for the school year 2020-2021 in Junior and Senior High School. As shown in the graph, modular learning modality has been the top choice for every year level based on MSAT LESF. Just like other schools, MSAT

Figure 1. Students preferred learning modalities for SY: 2020-2021

was having difficulty in the first implementation of the printed modular learning modality. The teachers and students were trying to adapt to the transition stage amidst the pandemic. It was evident in the first month of the implementation that parents too were at the peak of their adjustments as to the retrieval and submission of the modules. Parents were all in distress on how to motivate their children in answering their modules and even confessed that they are the ones who answered some of the modules given by the teachers.

As a subject teacher and adviser, I struggled with module preparation, distribution, and communication with parents and students. In my own advisory class, I encountered parents who are conscientious about adhering to the module distribution and retrieval schedule. There were also parents who did not adhere to the schedule, which resulted in an increase in my workload. But it was the recurring late submission of modules and outputs, submission of incompletely answered modules, and low grades at the end of the quarter that caught my attention. According to Hartnett (2016), students lack the ability to construct meaning through assuming agency in learning, to establish and sustain meaningful dialogues, and to gain conceptual comprehension through active engagement without direct and immediate teacher assistance. It was supported by Yuhas and BrckaLorenz (2017) that the interaction between teachers and students does indeed have a positive effect on the cognitive

growth and perseverance of learners. With this, I honestly took time to reflect and ponder on immediate action that I need to take.

During the module distribution and retrieval, I examined my Quarter 1 and 2 attendance records, noting the list of students who were late in submitting modules and outputs, as well as those students who had incomplete responses in the activities featured in the modules. In my advisory class of 35 students, I discovered that 42 percent of them were late submitting their modules and outputs, 35 percent had incomplete answers in their modules, and 45 percent had ratings that were below satisfactory or within the 75-79 grading scale. Considering this, student engagement was considered as one of the critical aspects of the learning process especially in this time of pandemic. Personally, it became a challenge to me and for sure among the teachers in the public schools on how to improve their students' engagement. I deemed the method I used to incorporate into my lessons prior to the pandemic. I've used Quipper, Kahoot!, and Quizziz in the past to add excitement and something fresh to my students, particularly since I'm teaching Science 7. Everything has changed because of the pandemic, including learning modes. I decided to use it once more, but this time during a pandemic, and I called it Gamified E-Learning Platforms.

Furthermore, today's teachers must compete with technological innovations for students' attention and engagement. Gamification is a new field of study that re-engages students in learning by incorporating game

components into the learning environment (Malahito & Quimbo, 2020). In addition, while face-to-face classes are not possible during this outbreak, and caused a significant impact on teacher-student interactions, computer-based learning has emerged as the most viable alternative to off-line learning (Khan et al., 2020).

As a result, the aim of this action research is to use these gamified e-learning platforms to boost student engagement in answering self-learning modules in the new normal set-up. Consequently, it is envisioned that this method will aid students in increasing their engagement as they continue to use the printed modular distance learning modality.

II. INNOVATION, INTERVENTION AND STRATEGY

Considering learning necessitates each student's dedicated effort, student engagement is seen as a vital aspect in the teaching-learning process. The purpose of this action research was to address the issue of student engagement in self-learning modules using gamified e-learning platforms that emerged during this new normal set-up. The term "gamified" refers to the incorporation of game elements into various websites or online communities with the goal of increasing participation, engagement, and satisfaction (Moncreiff, 2019). Quipper, Kahoot!, and Quizziz are just a few of the gamified e-learning platforms available today. I believed that including these e-learning platforms into the teaching-learning process would increase student engagement and motivate them to actively participate and respond to self-learning modules.

During the pandemic, gamified e-learning platforms such as Quipper, Kahoot!, and Quizziz were employed to increase student involvement and interest in their classes. Students were given self-learning modules as their main source of learning this new normal because our students in MSAT were employing printed modular distant learning. Due to my observations of the students' difficulties in answering and completing their modules, I used these gamified e-learning platforms as a supplement to help them better understand what is written in their modules.

Quipper School, as an educational technology company, offers an e-learning experience with locally generated content for teachers, students, and administrators. By integrating high-quality learning content with a sophisticated online platform, teachers are better able to assist their students. This also gives students hands-on exposure with technology in their everyday lives (Agustina & Cahyono, 2017). This platform truly assists teachers in using teaching strategies that motivate students to like even the most unappealing lectures (Campos, 2016). Students learn in a variety of ways, and Quipper School provides a fun method to learn online. Teachers can utilize Quipper School to design their own lessons or use the pre-made lessons and quizzes.

Likewise, Kahoot! is an interactive quiz-game platform that allows students to collaborate as well as compete. According to a recent study, Kahoot! offers lots of new benefits, including the ability for teachers to be more creative and students to be more driven, both intrinsically and extrinsically. Students were encouraged to pay attention to the background to do well in Kahoot! (Basuki et al., 2019). This encouraged students to interact with the presenter, their peers, and the lecture subject. Students were motivated to see their names at the top of the leaderboard when using Kahoot!, and so were more attentive throughout lectures and related discussions (Licorish et al., 2017). Teachers can use this platform to pose questions to students in a fun fashion, and students can answer the questions using their own devices, such as cell phones,

laptops, or desktop PCs. It keeps track of each student's responses and even asks how quickly they respond to the question, making it simple for the teacher to challenge and analyze her students' progress (Hyett, 2018).

Furthermore, Quizizz is another gamified e-learning tool that allows teachers to perform interesting and engaging student-paced formative evaluations. This application, like the other e-learning platforms listed above, is particularly user-friendly because students may use their own devices with a browser to access it. Teachers can tailor their quiz session by setting the degree of competition and speed, which is one of the most appealing features of Quizziz. Quizizz is a fun multiplayer game platform or application for quiz-games in which students take control of their own speed in the gaming classroom activity (Reid, 2016). According to research on online quizzes as a teaching and assessment tool, combining quizzes with instructional activities/teaching methodologies is beneficial. It assists students in appreciating quizzes, learning effort, learning motivation, activity participation, and academic accomplishment.

In this action research, I designed my lessons and formative assessments using these gamified e-learning platforms based on my students' self-learning modules. This method was used to increase my students' involvement in responding to their self-learning modules. Because the administration of this method was constrained by the current community setup and students' online connectivity, the implementation timetable was pre-determined for each week to allow my students the

opportunity to have an internet connection, whether data or wired. Furthermore, this method was used in my seventh-grade science class. The implementation took place once a week on a set schedule, and it took about an hour, including the "kumustahan session," in which students were asked about their triumphs or challenges with SLMs. Regular calls, texts, or chats from the teacher were included in “kumustahan sessions” for the purpose of follow-up and monitoring. This technique was followed for four weeks in a row.

III. ACTION RESEARCH QUESTIONS

Based on the above-mentioned purpose of the study, this action research sought to answer the following questions.

1. What is the percentage of students who are less engaged in modular learning modality?
2. What are the experiences of the students on the use of the “gamified e-learning platforms”?
3. How do gamified e-learning platforms improve students’ engagement in answering self-learning modules?

IV. ACTION RESEARCH METHODS

This chapter covered the fundamentals of data collection and processing. In addition, this part highlighted the methodologies and procedures used to fulfill the action research's objectives.

a. Research Design

The study utilized the Action Research design which focused on obtaining useful information as to how a strategy was able to address or manage the existing problem with the learners (George, 2023). Both quantitative and qualitative data were gathered through different data-gathering approaches which evidently transform the input theory into practice.

This action research was also framed in order to establish a point of reference in the context of the learners in their school vis-à-vis the implementation of the program.

b. Participants and/or other Sources of Data and Information

The participants in this action research were selected students from Mati School of Arts and Trades' Grade 7 Friendship class with 35 number of students. This study looked at students who were less engaged in responding to self-learning modules during the pandemic. These students were chosen based on information obtained from a variety of sources. These include the attendance records during module distribution and retrieval, final grades for the first and second quarters of the school year 2020-2021, specifically in science subject, and the administration of a yes/no student engagement self-assessment to get the percentage of the students who are less engaged. The number of students interviewed was limited to ten (10) participants who were crucial to the data collection

process and was suggested by Dukes (1984) as cited by Creswell (2007). These students were identified and underwent intervention through the aid of the gamified e-learning platforms as well as enjoined for series of “kumustahan sessions”.

I initially obtained consent from the head of the Mati School of Arts and Trades to gain support from the administration and my fellow teachers. Furthermore, parental consent was asked prior to the students' participation, with total assurance that their identity and information would be kept private.

c. Data Gathering Methods

The data for this action research was gathered and analyzed in a series of processes. This research was carried out in the third and fourth quarters of the 2020-2021 school year. Because of the COVID-19 pandemic's various community restrictions, the consent was properly discussed with the students, and they were informed that participation in this study is voluntary, free of coercion, undue influence, or incentive. Through a messenger group chat, participants were informed about the goal of the self-assessment which was administered using google forms and the interview through video chat. In addition, after receiving approval from their parents and the students themselves, the 10 identified students from my advisory class were interviewed.

The students' attendance records of module delivery and retrieval, as well as the grades they received in their science subject during the first and second quarters of the school year, were used to collect the first data. A student self-assessment tool on student engagement answerable by yes or no was adapted and modified from the Alberta Education (2009) and was used to confirm the data obtained through the teacher's records and to answer the first research question. Students who answered yes are considered engaged, whereas those who answered no are considered less engaged. A descriptive statistic was employed for the analysis of the data.

The next phase was to conduct an interview to address research questions two (2) and three (3). This instrument assisted me in uncovering vital details that the previous stage had missed. The goal of this interview was to learn about noteworthy experiences students had while participating in the strategy. Thematic analysis was used to examine the interview results. For each of the students' noteworthy responses, codes were produced. After that, the responses were organized to form a more fitting theme.

V. DISCUSSION OF RESULTS AND REFLECTION

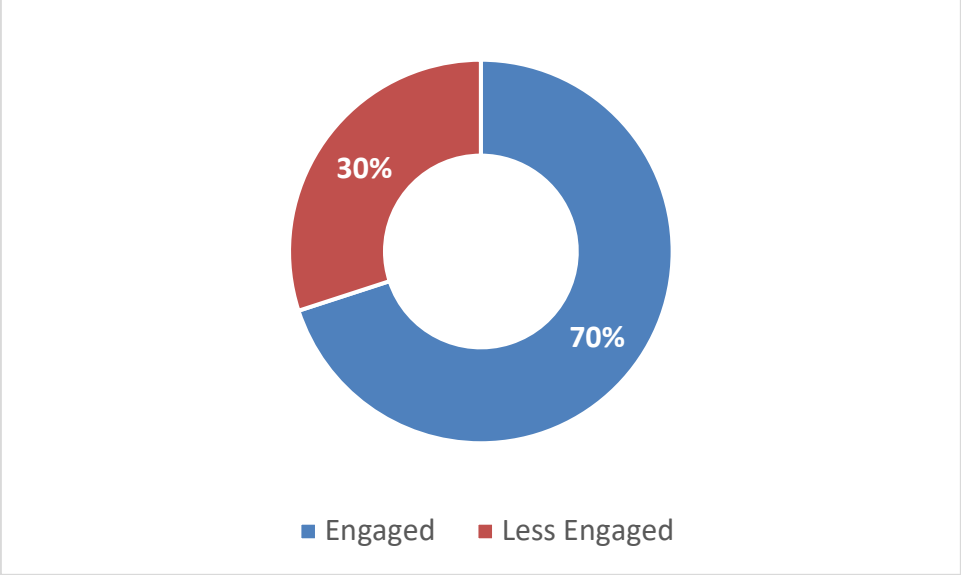
This section of the action research summarizes the findings and provides a full discussion based on the research questions.

Table 1. *The results of Student Self-Assessment on Student Engagement*

Survey Questions		Responses			
		Yes	**% Yes**	**No**	**% No**
1	Do you participate more actively in topics and lessons that show a clear connection to your life or the real world during this pandemic?	30	86%	5	14%
2	Do you participate more actively in lessons that give you choices in how you show what you have learned?	26	74%	9	26%
3	Do you participate more actively when you are encouraged to set goals for yourself?	28	80%	7	20%
4	Do you participate more actively when you have the chance to talk to the teacher one-on-one (synchronous (online via zoom/messenger room/google meet) or asynchronous (messenger chat/text messages/phone calls))?	24	69%	11	31%
5	Do you feel at least there is one teacher who cares about you and how well you are doing in your lessons in this time of pandemic?	26	74%	9	26%
6	Do you feel the class work is too easy for you in this time of pandemic?	7	20%	28	80%
7	Do you have a voice in class decisions that affect you?	15	43%	20	57%
8	Do you have a voice in school decisions that affect you?	12	34%	23	66%
9	Do you care about how well you do in school?	28	80%	7	20%
10	Do your family cares about how well you do in school?	32	91%	3	9%
11	Do you answer your modules regularly?	23	66%	12	34%
12	Do you regularly finish your modules within the specified duration given to you?	21	60%	14	40%
13	Do you take pride in the quality of your schoolwork?	25	71%	10	29%
14	Does good grade matter to you?	30	86%	5	14%
15	Do you have the ability to complete the modules you get in school?	26	74%	9	26%
16	Do you try hard to get good grades?	31	89%	4	11%
17	Can you work on projects or activities that interests you in class?	27	77%	8	23%
18	Do you feel valued and respected in your class?	27	77%	8	23%
19	Do you feel valued and respected in your school?	25	71%	10	29%
20	Do you feel valued and respected by your classmates?	28	80%	7	20%
	OVERALL RESULTS	**25**	**70%**	**10**	**30%**

Table 1 shows the results of the student self-assessment on student engagement showing the number of participants who answered yes and no in each survey question with its corresponding percentage.

Figure 1. *Student Self-Assessment on Student Engagement Result*



To highlight the result Figure 1 shows the graph of the overall result in percentage of the students' engagement in modular learning modality. This figure indicates that 30% of the students are less engaged in the modular learning approach which means that 10 students are possibly less engaged out of the 35 students in grade 7 Friendship. This finding backs up the earlier disturbing signs of student disengagement, such as apparent late module submissions, incompletely answered modules, and grades that are below satisfactory based on the teacher's record. This strongly supports the study's attention on addressing students' needs during this pandemic.

In Table 1, 80 percent of the students said no to question 6: "Do you think the classwork is too simple for you in this pandemic?" This clearly demonstrates that most of my students are having significant difficulties in the learning setup during this pandemic. The students' worry and stress are exacerbated by the lack of direct and timely help from the teacher (Hartnett, 2016), as well as the unique combination of the public health crisis and social isolation (Singh et al., 2020). Furthermore, when asked if they "usually finish your modules within the specified duration allotted to you," 40% of the students said no. This data backs up the teacher's track record of late module submissions, which stands at 42 percent. These findings provide evidence that students are less engaged because of the modular learning method.

An interview was used to perform the qualitative portion of this action research to better understand and deconstruct the significant experiences of my students during the intervention process. The two questions were asked to the ten students who had been identified, and their responses were evaluated thematically.

Table 2 shows the themes for the first question: “What are the experiences of the students on the use of the “gamified e-learning platforms”? Describe your experiences.

Table 2. Emergent themes based on analysis of responses in Question 1

Themes	**Example Interview Response**	**Translated Interview Response**
Sense of eagerness to learn	“Lahi ra jud ug mag gamit ko sa Quipper aron mag study ug mag answer, kaysa sa modules nako kay katugon ko. Labaw na ug mag quiz naka ma’am gamit nag Kahoot! Or Quizziz, malingaw jud ko.” (S2)	“It's different when I’m using Quipper to study and answer, than when I use my modules because I feel sleepy. Especially when the teacher uses Kahoot! Or Quizziz during quiz, I have fun. ” (S2)
Accessible	“Ganahan ko sa Quipper kay bisan wala koy data maka access gihapon ko bisan offline ko.” (S5)	“I like Quipper because even I don’t have internet data, I can still access it offline”.
Motivates to study the lesson	“Maningkamot jud ko ug basa sa akong module kay didto man pd ka naga kuha ma’am sa imong Quiz sa Kahoot!, mag paspas jud ko basa sa question kay aron dako ko ug score.” (S1)	"I'll try to read my module because teacher takes her quiz from there, and put it in Kahoot!, I'll read the questions fast so that I can get big score." (S1)
Sensible Feedback	“Malingaw ko mag answer sa Kahoot! Ug Quizziz kay makita nako ug tama ba akong answer or dili, Nindot pud ug maka score ka ug dako kay makita nako akoa pangalan sa screen” (S7)	“I really enjoyed answering in Kahoot! And in Quizziz because I see directly if my answers are correct or wrong. And I feel happy when I get high scores because I can see my name on the screen.”

According to Table 2, students had a positive learning experience using gamified e-learning platforms such as Quipper, Kahoot!, and Quizziz. Since the use of gamified e-learning platforms enriches the learning experience, these are expected actions from students. The themes that emerged simply said that gamified e-learning platforms were being

used as a technique to increase student engagement. It encourages students to study on their own. Students can build a sense of responsibility in completing the tasks in their modules with the help of these gamified e-learning platforms.

Furthermore, when participants were asked to characterize or describe their experiences, two primary themes emerged, as shown in Table 3.

Table 3. *Emergent themes based on analysis of responses in Question 2*

Themes	**Example Interview Response**	**Translated Interview Response**
Clarity/Fun	"Mas nakasabot ko sa akong module kay ug schedule namo mag klase gamit ang gamified e-platforms naa man pd ka ma'am mag assists namo, lingaw pa jd kay makita nako na akong mga classmates pd naningkamot mka answer ug tama." (S8)	"I can easily understand now my module especially during our scheduled class using the gamified e-learning platforms, because you are there too to assists us. " (S8)
Readiness	"Mas ma appreciate na ko ang lessons namo ug nag gamit na sa Quipper, Kahoot! Ug Quizziz. Mas nakat-on ko mobasa sa akong module kay dili man ko ka answer ug paspas sa quiz ni maam ug dili ko mag study daan." (S1)	"I appreciated our lessons more when using the Quipper, Kahoot! And Quizziz. I learned to read my modules so that I can respond right away with the questions". (S1)

It's encouraging to learn that students have come to this conclusion. It gives me a sense of accomplishment that by using these gamified e-learning platforms, I was able to open their minds to be thankful and instill some drive to learn.

After hearing about their experiences, participants were asked, "How do gamified e-learning platforms improve your participation in answering self-learning modules? The goal of this inquiry is to find out whether students found gamified e-learning platforms to be useful. The participants then universally responded YES, and their reasons were evaluated thematically as shown in the table below.

Table 4. *Emergent themes based on analysis of responses in Question 3*

Themes	**Example Interview Response**	**Translated Interview Response**
Improves engagement in modular learning	"Oo, dako kaayo iyang tabang sa akoa tungod kay imbes gina tambak ra nako ang module human ni mama ug kuha sa eskwelahan, maningkamot na ko karon ma abri ug makabasa labi na sa science. (S7) "Oo, nakatabang jud sya sa akoa, kay sa una igo ra nako pillion ang akoa answeran sa module, karon maningkamot na ko na ma answeran jud tanan, kay aron maka answer ko sa sunod na schedule nato maam na mag Kahoot! Or Quizziz ta." (S5)	"Yes, it helped a lot instead of disregarding my modules, I tried now to open it and read especially in science. "(S7) "Yes, it's a big help for me. Before I only choose exercises for me to answer, but now I tried to answer all so that I can also answer to the next gamified lesson." (s5)

Being responsible	“Yes, helpful sya sa akoa. Kay sauna okay ra sa akoa madugay si mama ug kuha sa module, karon kay ako na mag sige pugos kay mama na kuhaon na akong module. Kay dili man ko kasabay sa gamified lesson nato maam ug dili nako Mabasa ang next lesson” (S1)	“Yes, it is helpful to me. Before its ok for me that my mother will be late in getting my modules, but now I was the one who urge her to get my modules, because I cannot answer and relate to the next gamified lesson if I will not read my module.” (S1)

Furthermore, it is worth highlighting that the utilization of gamified e-learning platforms does genuinely provide students with a favorable learning experience. Themes obtained from questions 1 to 3 demonstrate that there is a consistent and good impact on the students. For example, gamified e-learning platforms such as Quipper, Kahoot!, and Quizziz enable them to become independent learners who value their task of finishing and answering their modules within the time frame allotted to them. They may learn and have fun at the same time. They take charge of their own learning, and it's pretty humbling for me to accept this revelation from them.

There is enough collaborative evidence to suggest that using gamified e-learning platforms helps students engage and participate in the modular learning brought on by the pandemic at this time. Accordingly, the identified students who were determined to have received the intervention showed a significant increase in attendance for module

distribution and retrieval, modules submitted were complete, and their grades in the third and fourth quarters were noticeably higher than the previous quarters.

VI. ACTION PLAN

Table 5. Action Plan on the Use of Gamified E-Learning Platforms

ACTIVITIES	OBJECTIVES	PERSONS INVOLVED	DATE/ TIME FRAME	MEANS OF VERIFICATION	EXPECTED OUTPUT	MATERIALS	BUDGET	FUNDS
Conduct School Learning Action Cell (SLAC) on Gamified E-learning Platforms	To inform teachers on the importance of Gamified e-learning platform.	Teachers	May-June 2021	Approved Activity Design Attendance Pictorials	Well informed teachers about gamified e-learning platforms	Data or internet connection Zoom App or Google Meet Laptop Smartphone		
Attend Division/ Regional Colloquium	To disseminate results of the action research in a research colloquim.	Researcher Division/ Regional Personnel	November to December 2021	Certificate of Recognition Pictorials	Well disseminated information	Data or internet connection Zoom App or Google Meet Laptop Smartphone		
Produce Pamphlets/ Brochure	To disseminate results and findings through brochures	School Heads Researcher	September 2021	Printed Brochure Pamphlet Pictorials	Printed Brochure Pamphlet	Photopaper Tarpaulin		
Dissemination through Social Media	To disseminate results and findings through social media platforms	Researcher	October to December 2021	Pictorials Video	Wide dissemination of the results and findings	Data or internet connection		

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