HOW DOES MATH SAGIP PROGRAM IMPROVES MATHEMATICS PERFORMANCE OF LEARNERS IN THE NEW NORMAL?

Delima, Veronica T.; Lim, Ralph D.; Thiam, Kremia Katrina C.

Completed 2023

ABSTRACT

This action research aimed to investigate the impact of the *Math Sagip Program* to students who have difficulties in finishing the activities or learning tasks in the Self-Learning Modules. The program was designed to assist the students in transitioning in the new set-up of learning due to the pandemic. It included the usage of online and offline applications such as PowerPoint presentations, Steamyard, Facebook and Quizzizz. Ten eight-graders were selected to become the participants. These students had low math performance in both modules and the 1st Quarter Summative Test. Evidences that showed significant improvement in mathematics performance came from the comparison of the test scores of the Quarter 1 and the Quarter 2 Summative Tests and the recorded statements of the students about their experiences throughout the course of the program. Thematic analysis was utilized to evaluate the statements of the participants. The themes generated had revealed the successes the *Math Sagip Program* had delivered to the participants. On the contrary, there were barriers encountered such as limitation in finances for the Wi-Fi load, poor internet connection, low phone quality and a dearth of self-assurance in answering the modules independently. Therefore, the researchers recommend teachers to employ in their classes the *Math Sagip Program* to optimize mathematics performance. Moreover, students should build confidence in learning mathematics. Lastly, the researchers suggest future research on how to develop more the program.

Keywords: Program, Self-Study, Performance, Mathematics, Education, Engaging

ACKNOWLEDGEMENT

The researchers take the pleasure of conveying their sincere appreciation and thanks to the people who helped make this effort possible, a direct favor from the Almighty. They would like to honor them for their generosity in lending their time, effort, and knowledge, which helped the team as a whole to successfully complete this challenging task:

Dr. Cristy C. Epe, Schools Division Superintendent, in allowing the researchers to carry out the study and for providing them permission;

Mr. Xavier S. Fuentes, our Senior Education Program Specialist for Planning and Research, for the assistance and sage guidance provided over the conduct of the study;

Dr. Jem Boy B. Cabrella, Mathematics' Education Program Supervisor, for his perseverance, guidance, insightful comments on the manuscript, and unwavering inspiration to complete this work.;

Mrs. Elizabetha R. Bueron, our school principal, for letting the researchers obtain the information they needed to conduct this study.;

Mr. Rogan G. Adanza, our Officer In-Charge for the office of the Department Head, for the understanding, encouragement and warmth support;

Our **parents**, **partners in life** and **children**, for their love and moral support, who serve as our inspiration;

My **Digos City National High Schol friends and fellow mentors,** who helped and contributed to the fullfilment of this research;

Above all, to the **Almigthy God** for His unconditional love and grace.

VERALKR

I. CONTEXT AND RATIONALE

Due to Covid-19 crisis, the Department of Education had schools employ different learning modalities to all learners in the Philippines and also included was the provision of Self-Learning Modules (SLMs). In a press release of DepEd (July 2020), the agency ensured that all learners have access to quality basic education, albeit face-to-face classes are still prohibited, through the integration of SLMs with the alternative learning delivery modalities (modular, television-based, radio-based instruction, blended and online).

As teachers, we found it problematic when our students returned their modules with no answers to some or most of the items. This situation persisted up to the summative tests provided to them. With this, our students had obtained low scores. In a study done by Luke Saunders (2021), he stated that teachers utilize assessments to monitor how a student is performing in the classroom. When monitoring learners, teachers look at two main factors: formative and summative assessments. If learners are not performing authentic work on formative assessments, this may result to poor summative assessments. Our Grade 8 students were not performing well already in their SLMs much more in the summative evaluations. We discussed with our colleagues what could be the reasons of such poor learning results and also asked feedbacks from the students and their parents or families.

Feedbacks from parents include them having a hard time balancing their roles as working parents and becoming teachers to their children as face-to-face classes were suspended. Parents need to encourage their children as they blend to the new normal despite how testing it is for them to suffies the function of

teachers in the classroom (Valoroso, Idulog, Baslan, 2022). The new normal in the education system created challenges and certainly thrusted the parents into playing different roles to guarantee that learning continues in their child during this modular distance learning.

Collegial discussions about what could be the best strategies to use to address the problem of our students were also made. This is where we came up with the *Math Sagip Program* which we believe could assist the students in their learning dilemmas. Empirical data revealed that schools that manage to impose collaborative culture among teachers results to a supportive learning enivornment (Bryk, et. al., 2010; Lomos et al., 2011; Ronfeldt et al., 2015; Vescio et.al., 2008). As such, teachers have the responsibilities to find, create and employ techniques that would best suit the needs of the students with regards to the status quo.

Can we mitigate the learning gaps during this pandemic? How can we effectively and efficiently deliver our lessons to the students? These were the questions that boggled our minds and pushed us to start our action research. Theories about various teaching strategies are numerous. It is crucial to choose which is the best for a certain scholastic predicament but so is creating and developing approaches that can be used as a program for low-performing students.

Therefore, the researchers intent to conduct *Math Sagip Program* as an online remediation program to improve mathematics performance of students particularly those who was left behind in accomplishing the modules.

II. RESEARCH QUESTIONS

The action research focuses on the impact of *Math Sagip Program* to low-performing students and intends to examine its effectiveness by providing relevant data and insights of the students' experiences during the program.

The research questions we are investigating are the following:

1. Can *Math Sagip Program* affect learner's interest in answering the learning activities inculcated in their Self-Learning Modules (SLMs)?
2. How does *Math Sagip Program* assist students in improving their mathematical performance amidst this COVID-19 pandemic?
3. What are the learners' insights on the use of *Math Sagip Program* as online remediation tool in enhancing their mathematics performance?

III. INNOVATION, INTERVENTION AND STRATEGY

In Massachusetts, a study led by Maloy, Edwards, and Anderson (2010) showed that an online mathematics tutoring system can increase scholastic achievement of students in Grade 4. This supports the idea that online remediation programs can assist students in their scholastic work by targeting the specific learning standards the students have not yet mastered.

In consonance with this, the researchers created the *Math Sagip Program* using online platforms like Quizzizz, Steamyard and Facebook in remediating students who fall behind in finishing the activities in the modules. PowerPoint presentations converted into videos are also utilized in the implementation of the program.

The *Math Sagip Program* is conducted from Mondays to Fridays for 4 successive weeks. Each day the session will last for an hour. For the sessions

happening from Mondays to Wednesdays, one of the researchers would discuss the lesson online using Steamyard so that it can be livestreamed in Facebook. After the livestream, this turns into a pre-recorded video which students can replay should the need arises. Thursdays are allotted for the interactive online-based quiz tool, the Quizziz. On Fridays, an online session is again conducted to discuss the items of a parallel form of the Quarterly Summative Test. Parallel forms are different versions of a test that measure the same objectives and yield similar results (Shrock & Coscarelli, 2007). Students are guided on how to correctly interpret and solve mathematical questions. The Summative Test is divided into ten items per week so that students can keep up with the pace in learning math independently while working on reasonable number of activities.

The students chosen to become participants of the said intervention program were students whose scores are below proficient in the Summative Test of the 1st Quarter and who were not able to answer most or all the activities in the SLMs. Since part of the program make use of the Internet, we ascertain that the participants have smart phones or laptops and are able to connect online. If the internet access is not possible, videos on that day were sent via FB messenger and the students can watch them on a later time.

Orientations prior the conduct of the intervention program were also done. Parents and guardians were implored to give their full support to the program as it is beneficial to their children's education specially when it comes to improving their performance in the next quarters.

IV. ACTION RESEARCH METHOD

a. Research Design

Descriptive-comparative design were used for the quantitative. In descriptive-comparative the researchers considered two variables such as the Quarter 1 and Quarter 2 summative test results and created a appropriate process to infer which is better after the intervention had implemented.

For the qualitative approach, the researchers adopted the descriptive phenomenological method. In-depth focus group discussion and semi-structured interviews was utilized in this descriptive phenomenology study to scrutinize student's insight on their experiences in participating the Math Sagip program.

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

The participants of this action research were the ten Grade Eight students of Digos City National High School for the S.Y. 2020-2021. This school was selected because it is where the researchers were employed. Similarly, the students chosen belong to the classes of one of the researchers, Grade 8-Gumamela and Grade 8- Dandelion.

The researchers focused on those students who had notable low performance in both modules and the 1st Quarter Summative Test. In particular, the participants were the ten lowest performers in the ranking of the Summative Test scores.

With regards to the protection of the participants, their attendance and identities were kept confidential. Their test scores and recorded interviews were strictly classified.

c. Data Gathering Methods

The steps in data collection were as follows.

i. Asking permissions from our School Principal and Schools Division Superintendent to conduct our action research in Digos City National High School.

ii. Gathering the Quarter 1 Summative Test scores from the selected two sections and identifying the participants of the study

iii. Meeting the participants together with their parents through Google Meet or Facebook messenger, informing them of the goals of the study and giving them informed consents.

iv. Collecting the informed consent by letting students take a photo of it and sending it to the FB messenger and presenting them additional instructions for the *Math Sagip Program* schedules

v. Conducting the *Math Sagip Program* to the participants, instructing them to answer 10 items of the summative test per week for four weeks and writing a journal of their observations and experiences during the course of the program.

vi. Checking of their submitted answers via google form and monitoring of the attendance of the students.

vii. Letting students take the 2nd Quarter Summative Test and after, answers were tabulated, analyzed and interpreted.

viii. Interviewing the participants, recording their responses and analyzing them thematically. As suggested by Harvey (2015), the researchers allow the participants to read the transcribed interview exchange to make sure the truthfulness of the data. Participants were questioned to review the transcripts for their comments and suggestions

d. Data Analysis Plan

Below was employed data analysis plan.

1. Graphical presentations were utilized to present the mathematical performance of the students before and after the conduct of *Math Sagip Program.* The 1st graph showed the scores of the participants in the Quarter 1 and Quarter 2 Summative Tests while the 2nd graph compared the average percentage test scores of the two Summative Tests.
2. Answering the second and third research questions, all transcribed interviews were analyzed thematically. Significant statements from their responses were extracted and evaluated and from that, concepts and meanings were formulated.

The researchers ensured transferability by following protocols in doing qualitative research so the future researchers could learn. Creswell (2013) described dependability as the reliability in a qualitative study. First, extensive discussion about the research methodology and the processes employed. Second, disclosing how protocols were applied, particularly in the collection, analysis, and interpretation of the data. The researchers analyzed and interpreted the data based on the experiences of the participants, thus, identified the emerging themes out of the process, not based on the researchers' opinions. Confirmability was associated with the objectivity of the study (Anney, 2014).

V. DISCUSSION OF RESULTS AND REFLECTION

Textual and tabular forms were utilized in presenting the result and the discussion of the findings of the study.

The Result of Utilizing the Math-Sagip Program

Reflected in figure 1 was the graphical representation showing the effectivity of the Math Sagip Program in uplifting the mathematical performance of the learners in doing the task in the Learning Activity Sheet (LAS) and in answering the Summative test.

Participants C, I, and J as shown on graph had no data. This indicates that out of ten (10) participants only seven (7) had scores. Therefore, 30% of the participants got zero or no answer at all. Further, 70% of the participants took the test with low scores such as 43, 49, 49, 57, 43, 54 and 43 which considered as below 60% of the items.

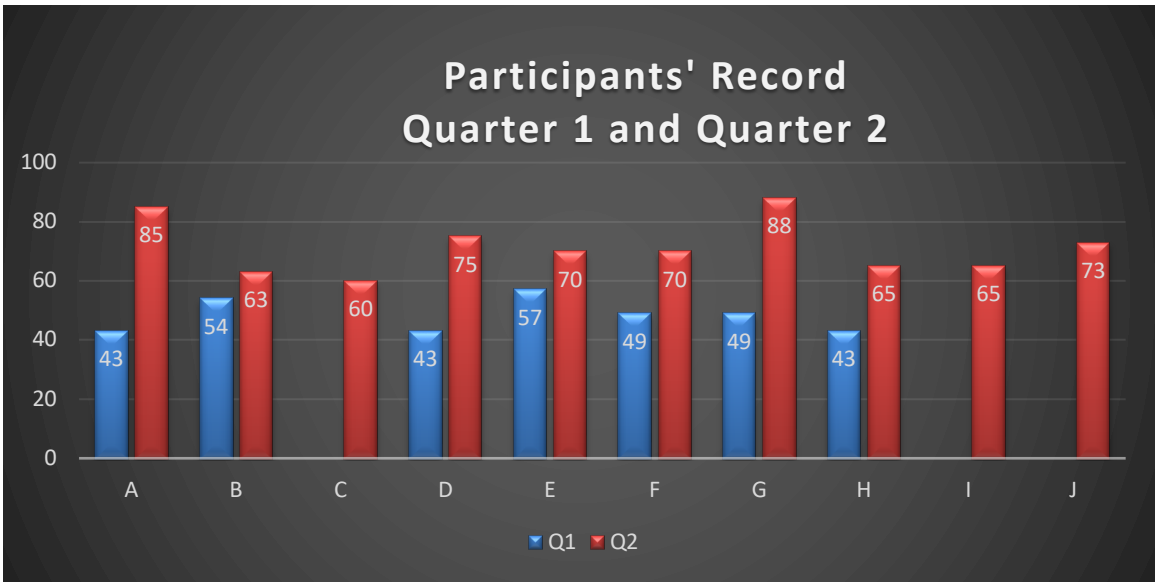


Figure 1. Participants' Record of Summative Tests for Quarter 1 and Quarter 2

This implies that in their self-study at home grade 8 learners were not performing well during the first quarter. However, after the intervention was introduced, great difference of the score was noted. Clearly seen in figure 1, that 100 % of the participants were interested to answer the summative test with their test result: 43, 85, 60, 75, 70, 70, 88, 65, 65, and 73. This is an evidence that the participants were motivated by the Sagip program to took the test and had a greater mathematical improvement compared to the previous quarter.

Also, results as shown in appendix page 43 revealed that learners had really enjoyed and interested on thier live online math quiz using quizizz app which makes online classroom fun , interactive and engaging. As to their modules, students had shown interest in answering their modules after Math Sagip Program was introduced. The high learners' interest in dealing with their modules was also observed.

The comparison between average percent test scores of Quarter 1 and Quarter 2 was reflected in Figure 2 as shown below. Prior to the implementation, result of Quarter 1

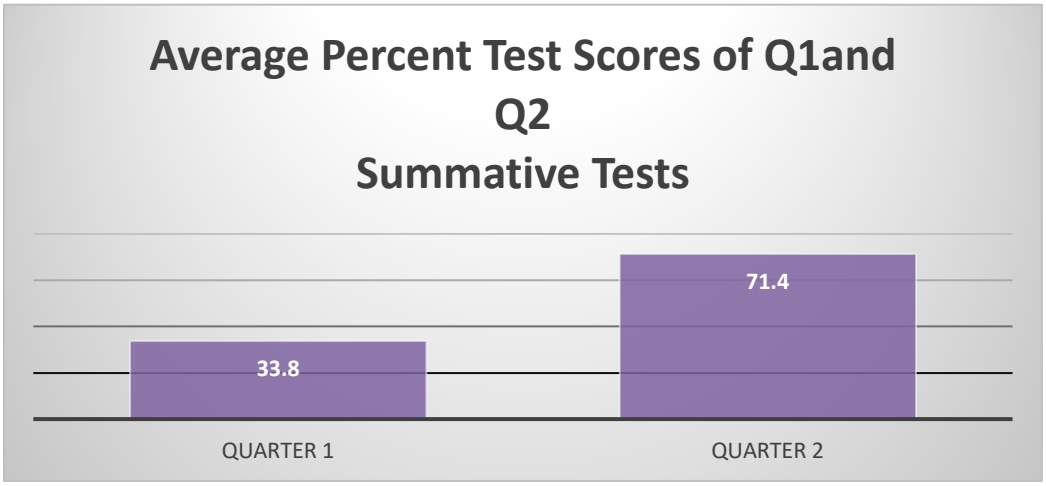


Figure 2. Comparison Between the Average Percent Test Scores of Q1 and Q2 Summative tests

summative test scores of the learners is only 33.8 while the average Quarter 2 summative test score is 71.4 when the intervention program was implemented and got a difference of 37.6 which is two fold increase. 111.24% is the average percent gain. This indicates that the Math Sagip Program (teacher-made video lesson, interactive games using quiz app, google form, learning activity sheets) has improved the Grade 8 learner's mathematical performance throughout the operation of the intervention program.

The result corresponds to the belief of Jacobs (2012) who believed that employing videos as instructional materials could lead to classroom participation in a higher educational situation. Several scholars have revealed that video lesson as a key approach in teaching can enhance student's participation. Further, according to Mubaslat (2012), the utilization of interactive games in teaching has increased the attention and motivation of students because games generate a rich atmosphere bursting with iteractions and stimulations for the learners.

However, the summative test scores of the learners were not comparable (refer to table A in Raw Data p. 33) for the reason of learner's diverse skills, pacing and styles.

On the other hand, as reflected on page 43 Exemplified Statement, the non-numerical data are themed based from the recorded interview. To answer research question number 2 and 3, data were analyzed.

How *Math Sagip* Program assists the learners in improving their mathematical performance amidst this COVID-19 pandemic

Reflected in Table 1 were the qualitative response of the participants on the research question: How does Math Sagip Program aids the learners in increasing their mathematical performance amidst this COVID-19 pandemic?.

Table 1. Themes and Core Ideas on How Math Sagip Program Assisted Learners in Improving their Mathematics Performance

Themes	Core Ideas
Provision of Learning Aid and Activities	-It helps learners to understand the lesson -It assists learners in answering the activities in modules and summative tests. -It enables the learners to engage actively on live quiz via quizizz.
Efficacy of the Video	-It has detailed explanations of the topic or for a certain problem. -The learner understands the language used in the set of video tutorials.

The themes and core ideas such as provision of learning aids and activities, and efficacy of the videos as the major themes with five core ideas are reflected in figure 1.

Provision of Learning Aids and Activities

The first theme is named provision of learning aids and activities with core ideas:

The Math Sagip Program provides learning materials and activities that helps learners to understand the lesson, assists learners in answering the activities in modules and summative tests and enables the learners to engage actively on live quiz via quizizz.

One of the responses of the participants that reflect the usefulness of Math Sagip in learning Math is reflected below.

> *"Mapasalamaton kayo ko sa Math Sagip kay makatabang kining programa nga dili mi maglisod mag answer sa modules ug sa summative test." (I am very thankful to Math Sagip as it helps us not to experience difficulty in answering the modules and summative test).* ***P-J # 1001***

Another participant mentioned that they are guided on how to answer in summative test through the recorded teacher-made video tutorials provided by the Math Sagip Program which is very comprehensive.

> *"Without Math Sagip Program assistance, students are experiencing difficulty in answering some questions in Math. But through this program, those difficulties are now bearable."* ***P-H #1013***

Moreover, Math Sagip program offers not only the recorded videos but also the interactive games using quizziz apps that is created as a gamified student engagement avenue that suggests numerous constructions to make teaching entertaining, cooperative and engaging. The participants were really enjoying in engaging the live quiz through their responses below:

> *"For me, quizizz is one of my favorite apps because when I play it, I find it amazing."* ***P-D #1037***

> *"Ang maistorya nako sa quizizz mam makaenjoy mam dili boring, og intresado kayo ko moanswer sa mga questions ug makachallenge jud ang game po." (I can say that quizizz is fun and not boring and it stirs my interested to answer the questions and the game is challenging.)****P-H #1032***

The responses of the participants shows sufficient evidence that Math Sagip program really provides learning aids and activities to better understand

the math lessons and learn it with fun and enjoyment even in the absence of the physical appearance of the teacher due to pandemic. It made the learners motivate to answer the different learning activities in LAS and summative test.

The finding is supported by Abdu-Raheem (2014) who revealed how instructional materials support explanations and allow the learning be more understandable to learners during the teaching-learning process. s

Efficacy of the Video

This second theme is named efficacy of the video which generates two core ideas: It has detailed explanations of the topic or for a certain problem and the learner understands the language used in the set of video tutorials.

Many of the participants appreciated its design and structure of the recorded video tutorials and especially the language used by the teacher explaining the lessons that made students understand the lesson well and was able to follow the process on how to solve problems embedded in their self-learning modules.

> *"Ang explanation ug discussion pud kay clear ug dali rako makasabot sa lesson. Mas makasabot ko sa questions ug makaanswer ko ug makakuha ug dakong score."(The explanation and discussion are clear and can easily be understood. I can easily understand the lesson and got higher score.)* ***P-H # 1031***

> "*Dali ra masabtan ang explanation sa Math Sagip Program kay si sir nag-english ug nagtagalog. Naghatag pud ug kompleto nga solution that is why po dali ra nako na answeran ang activities or lessons na gihatag." (Explanations in video lesson can easily be understood because the teacher is using English and Tagalog. It provides complete solutions that makes me answer the learning activities.)****P-E #1019***

> *"Math is not hard nor simple too mga tama tama lang but if you try to understand makasabot jud ka especially sa mga videos ni Sir Lim dako kayo ug tabang para sa amoa ginapadali kung unsaon ni o kung giunsa na." (Math is neither hard nor simple but if you try to watch the Math Sagip video of Sir Lim, you can really understand the topic and it is more helpful because of the way of answering it.)* ***P-I # 1026***

The participants' responses made it undeniable that the efficacy of the Math Sagip video tutorials are indeed experienced by the leaarners and aid students in increasing their mathematical performance amidst this COVID-19 pandemic.

The finding is supported by the study of Greenberg, et al. (2012) who stressed that student creativity and cooperation are improved through the video based materials. For student's learning experience, video can help in motivating students in creating a distinctive context. Experience wise, incorporation of video in the classroom allows students and teachers to help in broadcasting the lessons to enhance self-directed learning. Also, according to Ranasinghe and Leisher (2009), using technology in imparting the lesson to the students in meaningful and relevant ways can support the curriculum and can assist the teacher in creating a collaborative learning environment.

Learners' Insights on the Use of Math Sagip as Online Remediation Tool in Enhancing their Mathematics Performance

Reflected in Table is the themes and core ideas of learner's insight on the use of Math Sagip Program.

Table 2. Themes and Core Ideas of Learner's Insight on the Use of Math Sagip Program

Themes	Core Ideas
Stimulation of Learning	- It arouses learner's interest to learn Math - It inspires students to answer completely the activities in the modules. - It motivates the learners to understand math learning activities - It is beneficial to the learners in which learners are very grateful to have this online intervention program. - It makes students feel excited and nervous in engaging the interactive games online. - It stimulates fun in learning.
Opportunity for Self-Study	- It can be accessed anytime and anywhere for free.
Human Connection	- It comforts learners who are struggling math due to the presence of a teacher virtually teaching math via recorded video tutorials. - They understand the teacher's explanation virtually.
Learner's Struggles	- Financial constraint in sustaining the internet load - Weak internet Connection - Low quality of phone. - Learner's lack of confidence

Stimulation of Learning

The first generated theme under the insights of paricipants on the use of Math Sagip Program is named stimulation of learning with core ideas: The Math Sagip Program learning instructional materials arouses learner's interest to learn Math; It inspires students to answer completely the activities in the modules; It motivates the learners to understand math learning activities; It is beneficial to the learners in which learners are very grateful to have this online intervention program. Lastly, it makes students feel excited and nervous in engaging the interactive games online.

Among the responses of the participants that shows stimulation of learning are:

> *"Yes, it arouses my interest in answering learning activities in modules."* ***P-E #1012***
>
> *"Yes Math Sagip Program made me answer the modules easier and more interesting for me. I learn in a faster way than without it."* ***P-B # 1022***
>
> *"Math Sagip Program inspired me to answer completely the activities in my modules."* ***P-J #1020***
>
> *"It makes me feel motivated and can understand my learning activities."* ***P-A #1002***

Many of the participants quite mentioned that the program is beneficial on their part while learning Math without the personal appearance of the teacher since the instructor in the video is very potential and explains clearly the lesson.

> *"For me, it was a beneficial program because it helps students in completing the activities and the lecturer explained the concepts very well."* ***P-J # 1021***
>
> *"I have learned a lot especially those lesson that I think are very hard like the graphing linear inequalities between two variables and so far, it has no disadvantage yet, for me because it helped me a lot and made me understand difficult topics."* ***P-G # 1011***
>
> *"Yes, Math Sagip taught me things that are hard for me at first and it could help me to get high grades."* ***P-G # 1010***
>
> "I've always struggled with math, so I'm grateful to be able to watch the video even though I received only 60% on one of the tests." **P-A # 1003**
>
> *I owe to the program because I was able to answer and pass the summative tests in google form.* ***P-J # 1022***

Moreover, the participants also experiencing interactive games using the quizzes app as one of the activities employed in Math Sagip. The participants stated that they were encountering mixed feelings at first but later on they were

enjoying the online game and thankful of learning math creatively. Here are their responses.

> *"Quizizz challenged students to use their math skills in one and creative ways."* ***P-D # 1030***
>
> *"Sa totoo lang, noong first time ko maglaro using quizizz ang kaba ko dahil first time ko pa at tapos hindi rin ako bright ng math kaya nga doble ng kaba ko noon pero ngayon hindi na."* ***P-D # 1038***
>
> *"My great experience joining the live quiz using quizizz as part of Math Sagip program is we can also have fun while learning because it is easy to manipulate with a little fun".* ***P-F # 1036***

All these responses implies that Math Sagip Program provides encouragement and inspiration to students to learn more better in Math in accessing the recorded video tutorials and the use of quizzes app in time of education crisis due to pandemic. The recorded video really stimulates learning.

The finding corresponds to the beliefs of Lang (2016) that students with access to the video tutorials performed significantly better than student without access to tutorials and that providing video tutorials is better for student performance than providing no tutorials at all.

Opportunity for Self-Study

The second theme is named opportunity for self study with core idea that it can be accessed anytime and anywhere for free. The learner has all the time to open and study the recorded video tutorials of Math Sagip Program on his own convenient time and place.

Several participants highlighted the importance of Math Sagip in their lives in the new normal considering this intervention program as a learning tool

in accomplishing Mathematics activities. Among the response that highlighted the opportunity to self-study are:

> *"Some students may struggle with self-study because it is difficult for them to understand the lesson without someone virtually teaching or explaining the subject and they feel frustrated in completing their learning task due to lack of knowledge. Pero kay naa may video nga pwede balikbalikon ug tan-aw hangtud nga makasabot ka, medyo napasayon ang self-study."(But then video can be played and viewed repeatedly until lesson is understood which made self-study easy to do.)* ***P-A # 1006***
>
> *As per experience, its free and easy to access. You can reply the video if you have not understand it yet because it is a recorded video lesson.* ***P-D #1008***

The responses served as evident that Math Sagip Program video lessons provide learner an opportunity to go self-study because it is a prerecorded video. Thus, students can view, pause and review the lessons at their own convenient time and place.

According to Danielson et. al (2014), virtual accessibility of recorded lessons offers elasticity for those learners who are catching the challenging stresses of studies, work, and other obligations. Many learners use the pre-recorded video lesson to review course content and revise class notes at their own step. Furthermore, The option to play-pause the recordings assist students especially those who are weak in English as their main or inherent language (Maynor, Barrickman, Stamatakis, & Elliott, 2014, Ronchetti, 2010).

Human Connection

The third theme is named Human Connection with core ideas: The Math Sagip program comforts learners who are struggling math due to the presence of

a teacher virtually teaching math via recorded video tutorials; and the student can understand the teacher virtually teaching the lesson.

Video is incomparable in terms of reaching an audience. Utilizing person in video is the key to success in terms of creating a human connection. Effectiveness of a video increases when the voice and faces of a person will be used (Jones, 2023).

Among the responses of the participants that reflects human connetion are:

> *"I can understand the teacher teaching the lesson on the video."* ***P-F #*** *1027-1*

> "*Bisag walay teacher nga magtudlo atubangan namo, still mafeel namo ang presence ni teacher tungod sa video." (Even without the teacher teaching in front of me, still we feel their presence because of the video.)* ***P-I #1025-1***

Obviously, from the participants responses, it is concluded that the student participants are improving mathematically amidst COVID-19 with the help of Math Sagip Program recorded video lessons, quizizz app and google forms.

Learner's Struggles

The fourth theme is named Learner's Struggle with core ideas: In dealing with Math Sagip Program the learner has financial constraint in sustaining the internet load; the learners experiencing weak internet connection or no signal sometimes; and the learner has low quality phone which cannot access the video easily.

Actually, the researcher encountered difficulties in implementing this program but the problem was addressed right a way. The researcher provided the participants an amount for their loads just to finish the program and advise them

to stay in a place where wifi connection is strong enough to continue their academic activities.

Among the participants responses that reflect learner's struggles are:

> *"The challenge faced by the learners is when there is no signal."* ***P-H #1014***

> *"Ang akong nasinate na challenges po is dili ko ka access sa video lesson usahay tungod sa akong phone nga baratuhon ug low ang quality. Kailangan pa nako magpaabot sa akong mama aron manghiram ug cellphone aron ko makaanswer kas mas power paman tong iyang phone kaysa akoang phone."(As per experience, sometimes I can't access the video lesson because of my phone which is cheap and low quality. I have to wait for my mother so that I can read them all because her phone has higher quality than my phone.)* ***P-E #1018***

Perseverance and confidence to oneself in answering Math problems virtually were being mentioned by this participant.

> *"My challenge is e take jud nako sa akong sarili na dili ko dapat makulbaan dapat confident ko sa akong answer ug if naa koy malibugan I still solve naman basta ang importante is I need to know kung giunsa na sya pagkuha ang answer." (My challenge is I have to assure myself that I am condident with my answer and if I have doubts, I still solve it. What is important is that I should know the process on how to answer it correctly.)* ***P-I # 1026***

> *"The issue is that I occasionally ran out of load balance and I don't have the money to reload, so it was a struggle because I won't be able to respond immediately to the summative test in google form."* ***P-J #1021***

For every challenges encounterd during the implementation, the researchers were always seeking a solution. Successfully the program was implemented. The learners were able to answer the summative test and do the tasks inculcated in self-learning modules with high scores.

VI. PLANS FOR DISSEMINATION AND UTILIZATION

With the support and coordination of our Officer In-Charge, Office of the Department Head, Mathematics Department together with the approval of Digos City National High School principal, the researchers have a plan to disseminate the result and implication as soon as possible to the school stakeholders in August 2022 through the Advocacy Program. We will plan to introduce this to our colleagues especially the Grade 8 Math teachers coming from the other extension schools and annexes through LAC sessions.

The researchers have also planned to institutionalize the Math Sagip Program division wide through the support of the Division Education Program Supervisor in Math. We also plan to tap the local government officials to support us financially in order to materialize the utilization of this Math Sagip Program.

REFERENCES

Maloy, R., Edwards, S., & Anderson, G. (2010). Teaching Math Problem Solving Using a Web Based Tutoring System, Learning Games, and Students' Writing. *Journal of STEM Education: Innovations and Research*, 82-90. Retrieved from http://search.proquest.com.proxy1.ncu.edu/docview /356829522

Jacobs, G. E. (2012). Models of power and the deletion of participation in a classroom literacy event. Journal of Research in Reading, 35(4), 353–371.

Mubarat, M.M. and Jordan, J (2012). The Effect of Usig Educational Games on the Student's Achivement in English Language for the primary Stage. Retrieved on July 20, 203 from https://files.eric.ed.gov/fulltext/ED529467.pdf

Abdu-Raheem, B.O. 2014. Imrpovision of Instructional Materials for teaching and learning in secondary schools as predictor of high academic standards. Nige-rian Journal of Social Studies, 17(1), 131-143

Ranasinghe, A. I. & Leisher, D. (2009). The benefit of integrating technology into the classroom. International Mathematical Forum, 4, (40), 1955-1961. 14.

Greenberg, A., Barnett, T. L., & Nicholls, J. A. F. (2012). Teaching experiential learning: Adoption of an innovative course in an MBA marketing curriculum. Journal of Marketing Education, 29 (1), 25-33.

Lang, G. (2016). The Relative Efficiency of Video and Text Tutorials in Online Computing Education. Retrieved on July 20, 2023 from https://files.eric.ed.gov/fulltext/EJ 1135376.pdf

Jones, P. 2023. The Value of Human Connection in Video. Retrieved on July 21, 2023 from https://signalinc.com/the-value-of-human-connection-in-video/

Danielson, J., Preast, V., Bender, H., & Hassall, L. (2014). Is the effectiveness of lecture capture related to teaching approach or content type? Computers & Education, 72, 121-131. http://dx.doi.org/10.1016/ j.compedu.2013.10.016

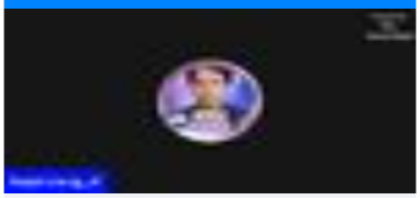
Maynor, L.M., Barrickman, A.L., Stamatakis, M.K., & Elliott, D.P. (2014). Student and faculty perceptions of lecture recording in a doctor of pharmacy curriculum. American Journal of Pharmaceutical Education, 77(8), 1-7.

Ronchetti, M. (2010). Using video lectures to make teaching more interactive. International Journal of Engineering Technologies in Learning, 5(2), 45-48. http://dx.doi.org/10.3991/ijet.v5i2.1156

SAMPLE INTERVETION

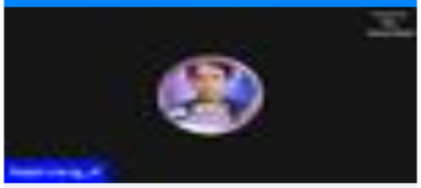
A. Sample Links for Math Sagip Videos (Teacher discussing the topic)

https://www.facebook.com/dicnhs.math820202021/videos/372309745443890 6/



Dicnhs MATH 8 Modular+Digital Modality was live.
Dicnhs MATH 8 Modular+Digital Modality

https://www.facebook.com/dicnhs.math820202021/videos/250165126585831/

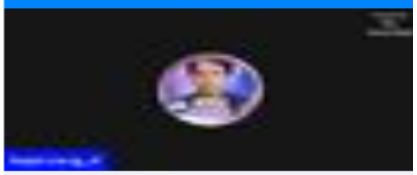


Dicnhs MATH 8 Modular+Digital Modality was live.
Dicnhs MATH 8 Modular+Digital Modality

https://www.facebook.com/dicnhs.math820202021/videos/270040248043979/

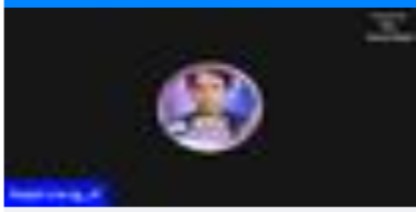
Dicnhs MATH 8 Modular+Digital Modality was live.
Dicnhs MATH 8 Modular+Digital Modality

https://www.facebook.com/dicnhs.math820202021/videos/180032416905874/



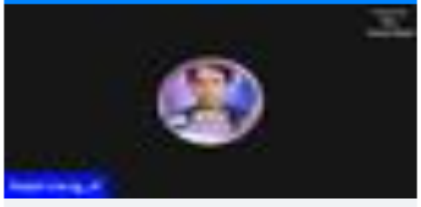
Dicnhs MATH 8 Modular+Digital Modality was live.
Dicnhs MATH 8 Modular+Digital Modality

https://www.facebook.com/dicnhs.math820202021/videos/820548395470077/



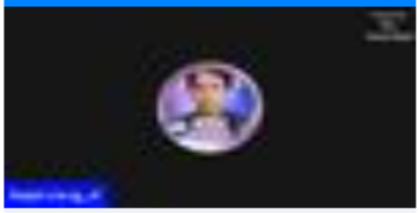
Dicnhs MATH 8 Modular+Digital Modality was live.
Dicnhs MATH 8 Modular+Digital Modality

https://www.facebook.com/dicnhs.math820202021/videos/246161200450203/



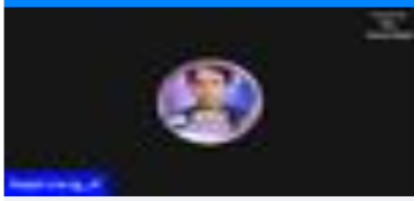
Dicnhs MATH 8 Modular+Digital Modality was live.
Dicnhs MATH 8 Modular+Digital Modality

https://www.facebook.com/watch/?v=2889622504653753



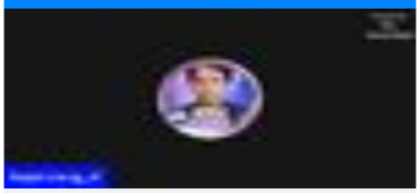
Dicnhs MATH 8 Modular+Digital Modality was live.
Dicnhs MATH 8 Modular+Digital Modality

https://www.facebook.com/dicnhs.math820202021/videos/177145483840573/



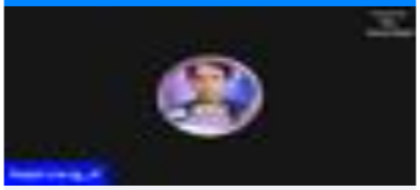
Dicnhs MATH 8 Modular+Digital Modality was live.
Dicnhs MATH 8 Modular+Digital Modality

https://www.facebook.com/dicnhs.math820202021/videos/2869430166646426/



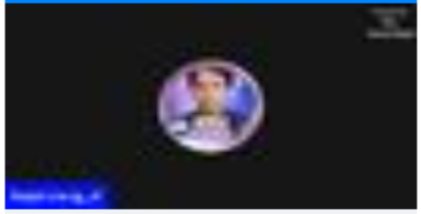
Dicnhs MATH 8 Modular+Digital Modality was live.
Dicnhs MATH 8 Modular+Digital Modality

https://www.facebook.com/dicnhs.math820202021/videos/3864924100238295/



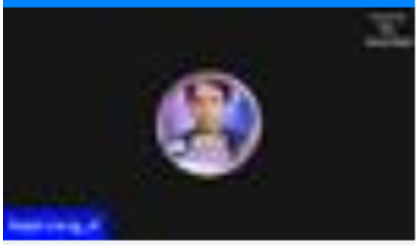
Dicnhs MATH 8 Modular+Digital Modality was live.
Dicnhs MATH 8 Modular+Digital Modality

https://www.facebook.com/dicnhs.math820202021/videos/818750345386241/



Dicnhs MATH 8 Modular+Digital Modality was live.
Dicnhs MATH 8 Modular+Digital Modality

https://fb.watch/3xDQ3r7F0y/



Dicnhs MATH 8 Modular+Digital Modality was live.
Dicnhs MATH 8 Modular+Digital Modality

B. Sample Links for Math Sagip Videos on How to answer Summative Tests