HOW DO PRACTICE TOOLS AND MOBILE GAME HELP THE LEARNERS IMPROVE THEIR SKILLS IN AUTOMATICITY OF BASIC MULTIPLICATION FACTS?

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ABSTRACT

The study looked into the experiences of students who went through an intervention program using practice tools (charts, flash cards, and board games) and a mobile app (multiplication table) during remedial time at Balabag Elementary School in Digos City Division. The study used an action research approach to explain the participants' reported observations and responses. The focal participants were nine grade five students who were struggling with fundamental multiplication concepts and scored the lowest on the pre-test. They were purposefully picked, and proper ethical concerns were respected throughout the investigation. Journals and records from the unstructured interview conducted during the program were used to learn about the accomplishments and obstacles encountered by individuals who attended the planned intervention program. The results of the post-test and teacher-made tests were recorded, and they revealed evidences of learning improvement by the participants. The qualitative material obtained was processed and presented in two collective themes. First, the difficulties faced show the participants' hesitance, their perception of numbers as tough, their limited attention or memory capacity, their attendance, their diverse processing abilities with the information, and their individual demands. The second topic, however, which is the success indicators, points to their active engagement, their loved learning process with the materials much more on the mobile game, their learning association with other courses, and self-realization to my role as a teacher. The key advocacy to be disseminated from school or at home is the integration of the intervention program necessary for optimizing the learners' potential in increasing their automaticity abilities in fundamental multiplication facts.

Keywords: automaticity, basic multiplication facts, practice tools, mobile game, remediation

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M.B.R.

I. CONTEXT AND RATIONALE

One day in our Mathematics session with my Grade 5-Guerrero from Balabag Elementary School, we were merely reviewing multiplication concepts using flash cards. Because our lesson for that day was translating mixed fractions to improper fractions, I was hoping it would help re-ignite the thoughts of my students. As a result, remembering ability or automaticity in multiplication facts is quite important.

Thinking firmly that all of my students had learned the basic multiplication facts from factors 1 to 10, I utilized the call-out approach to pick the student who would answer my questions. I had already called out four of my students who had properly completed their problems when I called out Jaderick to be the final one to solve the multiplication fact, 6 x 5.“Jaderick, please stand and answer this question, 6 x 5.”

“Let’s wait for Jaderick to answer this flash card class, 6 x 5.”

And after some time, I asked my learners,

“Who would like to help Jaderick on his problem class?”

Then Rosel raised her right hand and answered, “30 sir”.

When we waited for his response, my class was stunned into silence. He was unintentionally passing time by staring peacefully at the ceiling in search of a possibly written number. Jaderick showed no signs of despair or self-pity, so I urged him to study hard and practice his multiplication facts abilities even more, with an idea in the back of my mind about how to aid my learners like him on that subject.

The above story depicted an alleged occurrence of mine in which the challenge of recalling answers in multiplication facts occurred. One of my students demonstrated a lack of ability in mentally answering a question off a flash card. It was underlined that he had some trouble memorizing the solution by mentally multiplying the number 6 by 5, which

resulted in the product of 30. His quiet indicated that he was intently pondering for some input to be coupled with a probable answer, but no thought occurred to him. It may also be deduced that his multiplication ability did not correspond to his grade-level proficiency. Dotan and Ginat (2022) underscored the same challenges with their elementary participants who are native Hebrew speakers with their memory interferences due to the volume of facts to memorize by the learners.

On the other side, the vignette might be interpreted positively as well. I saw that the majority of my students had already mastered the fundamental multiplication abilities required at their level. They demonstrated ease in solving the numerical problem on the provided flash cards. They mentally solved the basic multiplication facts without any problem. Through this, learners gain advantages from having a strong grasp of basic math facts since it enables them to solve problems quickly (Sonmez & Alptekin, 2020).

Based on the two points of view presented, I was perplexed by the characteristics of equal learning that my students had in fundamental multiplication skills. I was wondering why most of my students already had the ability to recall or automate multiplication facts, but Jaderick did not. His mental capacity to solve and link multiplication facts was really poor. My main worry was what I could do to help Jaderick and other learners like him grasped the fundamentals of multiplication like his classmates because mastering these foundational skills is crucial for success in more advanced mathematical concepts and applications (Reys, et al., 2009).

In Science, a muscle reflex is a voluntary reaction of a specific organ or body parts to a stimulus, similar to the blink of an eye when struck by an item. Similarly, there is an essential type of reflex that teachers would want to see from their students when it comes

to fundamental multiplication facts, which is to recall the product immediately and precisely when asked for the answer or when integrating the notion of multiplication to other areas.

In a Mathematics class, active participation in the teaching and learning process is required. A brilliant situation in a given area, like as multiplication facts, is the student's rapid memory of answers or automaticity in answering fundamental number problems, such as asking 4 x 3 and the learner would swiftly offer the product 12. However, when it comes to grade 5 mathematics with competencies connected to multiplication, it is an ongoing issue for us teachers that we will find students who struggle to learn simple multiplication concepts. It is clear that even in higher grade levels, there are students who struggle to instantly react properly to fundamental multiplication facts problems. There will be difficult days when the following lessons to be taught demand prior understanding of multiplication facts, such as division, fraction, Least Common Multiple, Greatest Common Factor, and a variety of other topics. As a result, I'd want to raise the question and ask myself, "How can I help my grade 5 students improve their memory of basic multiplication facts?"

The difficulty of retaining answers in fundamental multiplication concepts has been a recurring one among Math teachers. Jaderick and others lack of multiplicative abilities led them to spend too much time thinking about and trying to solve for the solution, and they occasionally resorted to utilizing multiplication charts and counting on their fingers to solve elementary facts. I feel that my learners' future arithmetic performance will suffer as their remembering and automaticity skills deteriorate as the math ideas get more complicated and in depth. My students' failure to absorb multiplication facts is essential to their overall performance in other mathematical topics such as fraction learning. I have been teaching mathematics for about eight years and have used many teaching tactics to

efficiently transmit basic multiplication facts, but the recalling ability or automaticity of some of my students to answer is still weak, which is why this study was being undertaken.

II. RESEARCH QUESTIONS

My study investigated and explained the learning experiences of my students with their automaticity of basic multiplication facts in Balabag Elementary School in Digos City, Province of Davao del Sur for the School Year 2018-2019 using practice tools such as board games, charts, flash cards, and a mobile game of multiplication table. Specifically, my study sought answers to the following questions:

1. How do practice tools and mobile game help the learners develop their skills in automaticity of basic multiplication facts?
2. What are the challenges and successes experienced by the learners during and after the implementation of the mathematical practice tools and mobile game in recalling basic multiplication facts?

III. INNOVATION, INTERVENTION, AND STRATEGY

Students at our school were found to have a wide range of abilities and requirements. Some students succeeded academically, while others excelled in extracurricular activities. As in our Math lesson, some students excelled in certain abilities, while others struggled to even understand the most fundamental multiplication facts. How will I help my academically challenged learners in fundamental multiplication facts? That is the question I asked myself as a Math instructor in an effort to improve the performance of my students.

When our students were experiencing problems with the lesson on fundamental multiplication facts, we used additional exercises and worksheets as a prompt reaction. These remedies, however, failed to achieve the aim of enhancing the performance of my students in automaticity of fundamental multiplication facts, according to my observations.

My worry for my students continued, and it lingered in my thoughts asking, "How can I successfully solve this problem?"

The purpose of this intervention program was to assist my chosen fifth-grade students improve their speed and accuracy of fundamental multiplication facts (e.g. 3, 7, 5, 5, 2, 3, 6). This intervention program was designed to help students improve their speed and accuracy of basic multiplication facts. Use of practice materials (multiplication table chart, flash cards, board games, and worksheets) and the use of before and post-tests were part of the intervention program.

Following Kelli Wells (2015) results, this program was based on the four-week XtraMath technique for fourth-grade students, which helped them increase their fluency in memorizing fundamental multiplication facts. From the beginning through the completion of the research, there was an increase in students' ability to perform multiplication facts automatically.

It was also a remediation-based method that focused on enhancing the automaticity abilities of my chosen learners in this intervention program. The pre-test and post-test were designed in accordance with the level and circumstances of my students' comprehension. In order to achieve the study's goal while also allowing participants to have fun with their co-learners, a variety of practice tools were created. The worksheets and mobile game were hand-picked and designed specifically for the purpose of allowing students to put what they had learned to the test.

With the use of practice tools and a mobile game during remedial time in our class program, I was able to help the participants enhance their automaticity in fundamental multiplication facts via the use of pre-tests and remedial exercises. Finally, a post-test was given to clearly track the outcome of the intervention. My intervention program included a number of procedures and activities that were meticulously planned and conducted in

order to create a solid baseline and keep tabs on the progress of the students who participated.

Please see the annexes table 1 for an illustration of my students' illustrated intervention approach for developing automaticity in fundamental multiplication facts.

IV. RESEARCH METHOD

a. Research Design

My 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 my learners on their poor performance in multiplication facts (George, 2023). Both quantitative and qualitative data were gathered through different data-gathering approaches which evidently transform the input theory into practice as part of my research's objective.

This action research was also framed in order to establish a point of reference in the context of my learners in our school vis-à-vis the implementation of the program. I emphasized the critical aspect of utilizing systematic conduct of the investigation of the issue while I also kept on understanding and reflecting on the effect of my strategies towards the improvement of my learners in their automaticity skills (Quayson, 2019).

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

The primary participants in my action research were Balabag Elementary School Grade 5-Guerrero students. Our school is situated on an upward ridge, with the surrounding town mostly focused on agriculture. The school only has one class per grade level, and I am in charge of grade five. My Mathematics class included 30 students, 22 guys and 8 females. My students' ability ranged from one extreme to the other.

My core participants were chosen purposively based on the pre-test results and the researcher's understanding of the learners' backgrounds which were in line to problem being investigated (Creswell & Plano Clark, 2011). Only the 10 students with the lowest scores were included in the research and underwent the intervention program. At the commencement of the program, there were nine guys and one female. However, during the execution of our intervention program, one of the participants, a boy, dropped out of

my class due to a family difficulty that caused them to relocate, leaving just nine students to complete our program.

These students demonstrated passive involvement in math courses, poor results on various examinations, and a reluctance to respond when called upon by the instructor. Also, based on my varied activity records and class involvement, these students all had one thing in common: they had not mastered their automaticity abilities in fundamental multiplication concepts.

c. Data Gathering Methods

As a mathematics teacher, our ultimate objective is to assist all of our students develop the required abilities and concepts in our subject that they may use in their daily life. Knowing that not all of our learners were capable of acquiring the same competence at the same time and in the same way, my goal was to design an intervention program that aimed to increase their automaticity abilities in fundamental multiplication facts. Thus, action research design was used in order for me to gather information on how my pupils learn through my initiated program (Mills, 2011). Further, the following strategy was used to collect data for this study:

1. Pre-Implementation Stage

Prior to implementing the intervention program, I requested permission from my school head through a request letter to administer my program based on the preliminary data I obtained regarding my learners' abilities. After receiving approval, I alerted our Schools Division Superintendent through another request letter to carry out my intervention. Following that, all of my learners were given a 90-item pre-test before to the intervention to determine who would be most prepared to engage in the study's execution. The ten lowest-scoring students were chosen as participants, and they were given informed permission and assent papers to get voluntary acceptance from their parents

and the students themselves. Following the permission, I started the study's execution with an orientation for my key subjects.

Before and throughout the program's implementation, ethical concern and secrecy were respected. Pseudonyms were employed to identify each participant in order to keep their real identities and backgrounds hidden. Information, records, and other papers were kept secure in a locked cabinet where only the researcher had access. In addition, before to the completion of this survey, participants were given the opportunity to review and check their replies and data.

Finally, the intervention program, including pre and post exams, practice materials, worksheets, and the usage of a mobile application, was validated and consulted by our division education program supervisors in mathematics and learning resources, as well as a colleague mathematics instructor. Exams, practice tools and information on the mobile game administered. (See Annexes p. 34-43).

2. During Implementation Stage

My intervention approach consisted of five consecutive days per week for three weeks, with the use of practice aids such as charts, flash cards, board games, and worksheets, as well as a mobile multiplication table game. Prior to undergoing the intervention program participants, I ensured that they understood the concept behind the multiplication facts through a 30-minute lecture and demonstration. The role of the factors and the product as part of the multiplication fact, as well as its similarity to the expanded form of addition, were the main concepts that needed to be deepened. It would be a flaw if they familiarized and memorized fundamental multiplication facts without justifying the pre-requisite principles of basic multiplication facts to them.

During the intervention program's remedial period of thirty to forty minutes, the first practice material provided was a chart that displayed the fundamental multiplication table from 1 to 10. Each participant was given one chart and the opportunity to remember each

list of multiplication facts; this allowed the participants to drill and acquaint themselves with the focal table or factor of the day at their own speed for 10 minutes. Second, flashcards containing multiplication numbered problems with the unknown product were utilized to test the participants' ability to locate the product. For the next 10 minutes, they used them and communicated with their matched participant. The next activity was a board game, which was played using a 1/8 illustration board, chalk, and an eraser for each player. The facilitator was in charge of the flashing of multiplication fact cards, which was answered by the participants and lasted 10 minutes. Finally, the participants' enjoyment time was enhanced through the usage of an Android phone and the mobile game Multiplication Table from the Google Play Store. It allowed the participant to enjoy their practice of multiplication facts while defeating their co-participants' scores. With numerous play settings, the game presented each player with an opportunity to improve his or her abilities in automaticity of fundamental multiplication facts. In that sense, it was a case of having fun while learning. For ten minutes, the students were engrossed in the game. The diversified practice tool and mobile game enhanced the learner's speed and accuracy in responding to fundamental multiplication facts.

Every other day, exercises and teacher-directed examinations using 25-item worksheets were used to test the pupil's learning. Following the final session, a 90-item post-test of identifying goods was administered to clearly see the changes that happened before to and after the intervention program was performed.

3. Post Implementation Stage

The outcomes of my selection procedure, including pre-tests and a post-test after the intervention program, were all documented and gathered. These scores were necessary in order to provide a simple graphical display for data interpretation. Similarly, scores from daily board games, amusement mobile apps, and multiplication table

worksheets were logged for monitoring. This benefited me in assessing my students' learning levels on a regular basis throughout the intervention program.

Furthermore, throughout the execution of the intervention program, I maintained a notebook or journal to document the experiences, ideas, and reactions of my participants during the unstructured interview anchored to the study guide questions. As the students completed each task, the procedure of gathering their replies was variable.

d. Data Analysis Plan

I analyzed the learner's data based on its purpose during the conduct of the study. Pre-test and post-test results were recorded in order to objectively identify the effectiveness of my intervention program which was conducted to my participants. Bar graph was then utilized after to represent the level of automaticity skills in basic multiplication facts of my learners prior and after the program.

Lastly, the unstructured interview and observation were conducted to record in my journal all the salient experiences, thoughts and responses of my participants relative to the objective of my study (George, 2022; Kawulich, 2012). These data were vital to substantiate my findings on the impact of my intervention program to my selected participants, and validate from their own words how the program affects their performance in basic multiplication facts.

V. Discussion of Results and Reflection

This section presents the result of the study and the discussion of the findings about the learning experiences of my pupils with their automaticity of basic multiplication facts through practice tools and mobile game of multiplication table.

The Result of Using Practice Tools and Mobile Game – Multiplication Table

One of the objectives of this study was to explore the evidences which showed the helpfulness of practice tools and mobile game-multiplication table.

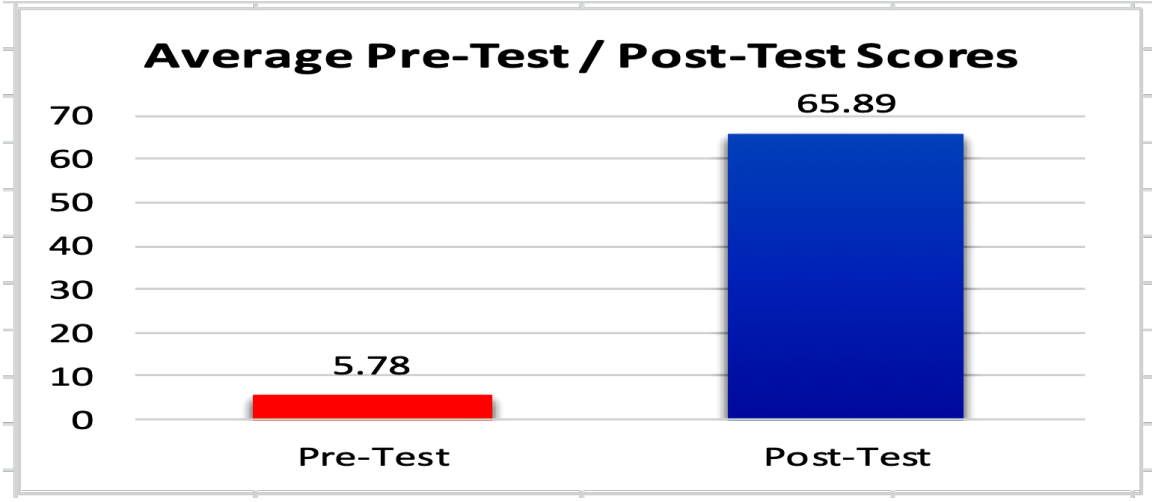

Figure 1. Pre-Test and Post Test Scores of the Participants

On the average from figure 1 above, the pre-test score of my learner is 5.78 points. After the administration of the intervention program, the average post-test score is 65.89 points. The difference between the post-test scores is equal to nine folds increase with a standard deviation of +/- 652.58%. The coefficient of variation is 0.7 with a descriptive equivalent of heterogeneous. Based on the results, the intervention program has improved the scores of my learners; it can be observed that the 9 pupils really improved their tests results from the average of 5.2 to 65.89 out of 91 items. Also, post-test scores of my learners are not comparable due to their varied learning capabilities, styles and pacing. (See table 3 in Raw Data p.33)

Furthermore, the teacher made tests' results that happened every two days displayed improving results by most of the participants except participant F who showed distinct low scores and zero sometimes. (See table 4 in Raw data p.34)

It is also evident during our board game sessions that the learners have developed recalling ability in basic multiplication facts through their accurate answers, though sometimes they still got wrong products, but from time to time mistakes were becoming minimal.

Likewise, the results of mobile game recreation (Multiplication Table from Google Play Store) of pupils revealed their great interest in utilizing gadget like smart phones as a medium for practicing basic multiplication facts. Their scores in the game every session was gradually becoming better and better even with the time constraint.

Therefore, it is a valid observation that the participants do really improve their basic multiplication facts through practice tools and mobile game. Their scores and correct answers from different forms of activities and assessments have improved significantly. This evidence reinforces the importance of acquiring fundamental arithmetic skills, specifically focusing on the multiplication table (Dotan & Ginat, 2022). Such proficiency in basic arithmetic is considered a crucial component of the elementary school mathematics curriculum.

On the other hand, the non-numerical data are themed based from the recorded observations from my journal on the participants' experiences and responses during the intervention program of practice tools and mobile game (See Audit Trail p.46). These data were analyzed to address the research problems of the study. The essential themes of the study are presented below:

Difficulties Encountered

There were eleven of us in the corner of our room at that time when we started the first session of our intervention program. Ten participants were showing hesitation and stillness as if they have committed mistakes in front of me. I asked them why they were acting like that, participant B replied "*basin kasab-an mi nimu sir kay dili mi kabalo mu-times*" (maybe you get angry with us sir because we do not know how to multiply). Another

answer of participant H was "*madugay mi ug uli sa amua sir, kasab-an mi nila mama*" (maybe our parents will scold us sir because we will return home late), while most of them were just quiet and observing what was going to happen next. Hence, I made it clear to them that this remedial session was neither a punishment for them nor a solitary time. Also, I relayed to them that their parents allowed them to participate in our activities every afternoon. As a facilitator, I employed happy and humorous atmosphere which I thought was a good countermeasure for their reluctance. (Archive # 101-102)

On the succeeding sessions, I observed that one of the common problems was their outlook or notion on numbers as difficult. With the statements of participant F *"lisod man sir oy, maglibog ko ug memorize*" (it's difficult and hard to memorize sir) eventhough he had not yet open the chart, participant B said "*lisod man nioy, daghan mga numero ug dagku pajud ang uban*" (it's very hard, dealing with many number and some are even larger numbers),this was an eye-opener to me realizing that he needed to cope with their fear on numbers or avoidance of mathematical terms and symbols. (Archive # 103- 104). This concerns me for the fact that students who exhibit poor mathematical performance encounter challenges in acquiring fundamental math skills, including understanding mathematical concepts, number concepts, basic facts, and digit values (Sonmez & Alptekin, 2020).

I also perceived that most of the participants complained every session to forget what they memorized last session, and that they missed some of the products of harder table like 6, 7, 8 and 9. This was evident through their responses: participant C "*makalimot jud ko usahay sa 6 ug 7 ba*" (sometimes I really forgot the products of table 6 and 7), participant I "*unsa gani tong 8 x 7, 54 or 56 mmm*" (what's the answer of 8 x 7, was the answer 54 or 56 mmm), and participant A "*hehehe nakalimot ko sa akong gimemorize gahapon sir, pwede sa 2 nalang sako balik sir kay sayon*" (I really forgot what I had memorize yesterday sir, can I just go back with table 2 sir because it's easier, while he

was smiling). The way they familiarized or recalled the multiplication table were inadequate due to their limited focus given at a time. (Archive # 105- 107) Similarly, according to Bender (2010), some students find it difficult to memorize multiplication facts as the level gets higher which requires more fluent, fast, and correct responses.

Another challenge was the attendance of my participants. Two of them had three absences (participant H and E), one had two absences (participant I) and participant G had dropout from schooling. When they returned to our session the next day, I asked them why and they answered: participant H "*tabang ko harvest ug kamote sir*" (teacher, I helped my parents in harvesting sweet potatoes), participant E "*gikalintura man gud ko sir, sakit ako ulo*" (teacher, I had a fever and headache), participant I "*gipauban ko ni mama sa digos sir*" (teacher, I accompany my mother to Digos), and about participant G, I just learned it from his classmates and confirmed by my co-teacher that together with his father they transferred to Bukidnon. This concern was beyond my control due to their health problems and family reasons. Hence, I just encouraged them to double their effort to practice basic multiplication facts so that they can cope up what they missed. (Archive # 108-110)

I also observed that participant H had this fear of using gadget during our practice in recreation time of mobile game. He said "*dili man ko kabalo mu-cellphone sir, mahadlok ko basin maguba*" (I don't know how to use cellphone sir, I feared that I can cause damage to it). Likewise, participant C stated "*mangurug man ko pag mugamit ko*" (my hands will tremble when I am using cp). Thus, I told them not to be afraid and just enjoy playing the game which eventually happened. (Archive # 111-112)

On the other hand, there were times also that my participants wanted to skip their practice drill (doing the chart, flash cards, board games and tests) just to jump to recreation time of having mobile game. These instances were showed with the statements of the pupils, Participant A said "*dula nalang ta cellphone sir*" (let's just play with cellphone sir),

Participant D stated "*cellphone nalang minti sir*" (let usl just use cellphone always sir), Participant H "*dili nalang ta aning chart ug uban pa sir hehehe, times-times nalang ta sa cellphone*" (let's just not have the charts and others sir, let's just go directly to multiplication in cellphone sir), and other participants would tell "*sige na sir*" (please sir). That is why I always told them that practice drill were basics and vital that they must learn regularly. (Archive # 113-115)

Furthermore, my most challenging part was handling Participant F in terms of improving his skills and scores in recalling basic multiplication facts. He had this problem to forget the answers and factors, he tends to memorize correct factors and products of easier table like 2, 5, and 10 but could not apply to board games, mobile games and particularly in the worksheets. All of these,were translated into his low scores and inaccurate answers compared to other participants. Thus, I interviewed him personally on his problem; he said "*makamemorize ko sir pero ambot lang ngano maglisod ko sa kanang mag-answer na*" (I can memorize sir, however it is harder in times of giving the answers). By then, I taught him how to use the practice drill and slowly I accompany him in writing and remembering the products on the test paper and board games. However, the next day in our session, again I would be surprised to note that he could not write the correct answers in the paper, board or cellphone anymore. He would just be quiet, took a serious look while combing his hair and said "*kalimot nasad ko sir, ambot ngano lisod*" (I forgot again sir, I don't know why it is hard). I reflected and still remained enthusiast of helping him improve his status considering the mystic reason why he could not easily be like his co-participants. (Archive # 116-117)

Success Indicators

Right from the start of selecting the participants during the test prior to intervention program, most of my pupils in the class were excited and eager to take the test because they wanted to get higher score as they learned that it was just about basic multiplication

facts. One of my pupil said "*sugod na ta sir*" (teacher, let's start already), another one told "*ready na kayo ko sir hehehe*" (teacher, I'm prepared while smiling), and a girl stated that "*kinsa kaya ang pinakadaku ug score ani hehe*" (who will have the highest score while smiling). It was a good flinch to conduct the test with those kinds of responses coming from my pupils. (Archive # 118-119)

Since then, after selecting the participants and conducting the intervention program, it was observed during the first practice drill of utilizing the chart for ten minutes, most of my participants learned the importance of memorizing the factors and product in each table. This was manifested through the statements of participant A "*kabalo nako sa table 2 padulong 4*" (I learned the table 2 up to 4), participant D "*dali ra man diay ang 5 ug 10*" (table 5 and 10 were just easier), participant E "*sayon ra man diay timan-an ang 5,10,15…*" (It's easy to memorize 5,10,15…), and participant H said "*sunod-sunoron ra nako hehe, ganahan ko*" (I had just followed the answers, it was nice while smiling). (Archive # 120-123)

Oftentimes, before I asked them to convene for the intervention program, my participants would tell me "*sugod na ta sir*" (let's start sir), "*time na gud sir*" (teacher, it's already time for our session) and they would settle themselves in our assigned place while taking the chart to start memorizing. I observed that aside from reading, memorizing and using of skip counting, all of my participants would use their fingers directing the patterns of their memorized products. This was a good sign that they are learning well while using their own initiatives. (Archive # 124)

Furthermore, with the help of our second practice drill which was the use of flashcards, my participants were becoming active and enjoyed guessing the correct answers. Participant B said "*lingaw gud sir, maka-huna-huna pa mi sa tubag*" (teacher, it is enjoyable and we can have time to think about the answer), and participant stated E "*kung mag-partner na kay maka-kulba pero nindot kay kabalo siya sa tubag ako kay dili*

hehehe " (when we have our partner it is becoming nervous, however, it is also better because he/she may know the answer but I don't, while smiling). Most often, using of flashcards became an avenue for them to help and coach other participants who were paired to them, just like with the instances were in participant A said to participant C "*diba 4 x 7 man, sige daw 4, 8, 12, 16, 20, 24, unsay sunod?*" (is it 4 x 7, just like 4, 8, 12, 16, 20, 24, what's next?). Then suddenly at time, the flashcard session turned into laughter because of the participants' behavior, their becoming wiser of tricking their partners just like writing in their palm the products and positioning the opened chart towards them, participant B would complain "*sir oh, nay gisulat na answer sa iyang palad hehe*" (teacher, he has written answers on his palm, while laughing), and participated E told "*hehe manikas man diay, tan-aw sa chart, ayaw ana*" (he is cheating, don't look into the chart, while smiling). Then, I reminded them of not committing the same tricked because it will not help them in learning and mastering basic multiplication facts. (Archive # 125-129)

The same goes with our session of board games, my participants were active and excited to pick their illustration board, chalk and eraser right after the end of our flashcard period even without giving them instructions first. They were having fun while practicing what they had learned. This was apparent through the statements of the pupils: participant E "*unsa kayay una, unta maka-answer ko hehe*" (what will be the first question?, hopefully I can answer, while smiling), participant A "*daan ko pa, tama lage 7 x 7 kay 49, mali nuon ako gisulat*" (i regretted, my first idea that 7 x 7 was 49 correct, but I wrote the wrong answer) and participant J reacted "*yehey, hehe tama nasad ko, kabalo najud ko*" (yepey, I'm correct with my answer again, I do really learned). It's almost liked a celebration of their success and a reflection of what they had missed. (Archive # 130-132)

Moreover, our recreation time using the mobile game of multiplication table from Google Play Store was always the best part. This was constantly the exhilarating portion wherein my participants would love to spend all their time. It was observable based on

their reactions and statements: participant A "*yes, kini najud ako gipaabot*" (at last, this is what I've been waiting for), Participant B "*kinsa kayay maka-perfect nasad, ako napud unta hehehe*" (who would get the highest score, hopefully it's me this time, while laughing), participant E "*dali-a dira ba kay ako nasad, kabalo nako ana ron oy*" (make it faster so that I can have my turn, for now I'm confident that I know what to answer) and participant G "*ganahan jud ko ani ba, dili unta mahurot akong life ug matama akong answer*" (I really like this, hopefully I will not consume all the life I have in the game and choose the correct answers). (Archive # 133-136)

Likewise, I witnessed that my participants improved their confidence in participating in my mathematics class which lead them in obtaining proficiency in multiplication-related skills which is essential for accurately and efficiently performing higher-level mathematical tasks. These skills encompass a range of operations, including multiplication without and with carry, working with fractions, verbal problem-solving, calculating with decimal numbers, and division (Reys et al., 2009). My Learners were already raising their hands in answering my questions and solving on the board. Also, they can now associate what they learned in multiplication to our new lessons. These situations were based on my experienced with my pupils in the class like participant B who told me "*sir, ako answer, 9 x 3 kay 27*" (teacher, let me answer, 9 x 3 equals 27), another participant of mine, participant J said "*ahh sayon ra diay ang pag-usab sa mixed fraction padulong sa improper, e-times ra diay ang ubos ug kilid tapos idungag ang ibabaw, gets na nako sir*" (now I see, it's easy to transform the mixed fraction to improper, just multiply the lower number and side number then add the upper number). Furthermore, participant D said in our class "*nagbalik-balik ang gi-times gikan sa katong chart ug flashcards gahapon sir, naa ron dira sa board*" (teacher, the figures we have multiplied in our charts and flashcards are repeating now, it appears now in the blackboard), and participant A also said "*pamilyar nako gamay sa mga answer sa katong times-times sir, magamit jud*

diay diri hehe" (teacher, I am now a little bit familiar with the products of multiplication, surely it is useful here, with a smile). I just let them realized the importance of multiplication to other lessons we had and somehow slowly guiding them to the other concepts like in fractions, word problem, numerator as the upper number and so on. (Archive #137-140)

Reflection

With the completion of my intervention program, I was able to reaffirm my belief that every kid has the ability to reach his or her full potential at his or her own speed, regardless of how empty handed he or she was at the start. He or she will undoubtedly learn something little by little as long as someone is prepared to offer a hand, put in a lot of work, and show true understanding. As a result, as a mathematics instructor, we do not want some of our students to fall behind in our class. We would want to accompany all of our cherished students on their trip to the next level, having all of the necessary abilities and ideas in our disciplines that can be applied to their day-to-day activities outside of the school grounds.

My intervention approach clearly demonstrated that participants' frequent and closed-loop supervised practice with proven tools and procedures might assist them enhance their challenging abilities or competences. Furthermore, contextualized and engaging activities such as games in mathematics might boost our learners' interest in loving number ideas. As a result, we must work harder to pick appropriate and effective treatments to address additional challenges that our students may face in the future. Let us develop enjoyable activities that are intertwined with mathematical education.

However, not all of the outcomes in my program could be considered successful in the same way as all of the other participants, such as in the instance of participant F, who had poor scores and uncertainty in transferring his learning to practical examinations. Fortunately, his post-test score increased by fourteen points from zero, including items

with involved factors of 5, 10, and 2. Despite the fact that he had progressed and learnt to memorize precisely fundamental multiplication skills, even simply the elementary factors, I am still a little upset. With this observation, I was able to determine that my program still needed to be altered based on each participant's stage of learning, even though they were previously classified based on lowest pre-test results.

Finally, difficulties about dropouts, sicknesses, and other variables that may impair our learners' involvement throughout our intervention program may occur. Livelihood and family issues, which are critical to their current levels, may also be disrupted. All of these are serious obstacles for us instructors who are primary movers with good intentions to aid them; hence, we should not be disillusioned or disheartened, but rather continue to spark their hope since we know that the quality of life is much higher when they complete their education.

VI. Plans for Dissemination and Utilization

The findings of this study shall be discussed and transpired to other educators especially our mathematics teachers who are having challenges on their learners' skill in mathematical concepts. Similarly, advocacy campaign activities shall be conducted in order to disseminate the vitality of the program and raise awareness on how improving of automaticity skills in basic multiplications can be developed.

Specific activities are presented below.

Activities	Time Frame	Audience	Success Indicator
Conduct information dissemination on the Research Findings at our School	1st week of July 2020)	All teachers of Balabag Elementary School	Positive Feedback from the teachers after the findings had been adapted
Giving of Brochures about the Research Findings	2nd week of July 2020	Schools in Digos Occidental District	Teachers received a copy of the brochure
Participate in Division Research forum	1st week of January 2021	All invited teachers, school heads, supervisors and other leaders	Positive Feedback from the attendees about the findings had been adapted

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