

Video Tutorial Lessons Using 5W1H Model in Enhancing the Numeracy Skills of Grade 8 Non-Numerate Students



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ABSTRACT: The study aimed to determine the effectiveness of using video tutorial lessons (VTLs) based on the 5W1H model on non-numerate grade 8 students. 44 non-numerate grade 8 students were identified and used as study respondents. The pretest was employed, followed by utilizing the VTLs and posttest administration. The study identified the personal related factors of the respondents in terms of instructional resources, learning environment, and parental support. The level of acceptability of the designed video tutorial lessons was determined in terms of content and technical production. The study also determined whether there is a significant difference in the pretest and posttest scores of Grade 8 students before and after using the VTLs. A significant relationship between variables was also tested using Pearson r . The findings revealed that the personal related factors for instructional resources of the respondents were printed modules, touchscreen cellphone and television. Likewise, learning environment and parental support are good as their personal related factors. In the pretest result, the respondents do not have mastery in measurement, calculating, patterns and relationships, and rational. On the other hand, they ranged from nearing mastery to mastery level in spatial and interpreting. Further, the level of acceptability of the respondents and experts on the quality of VTLs using the 5W1H model in terms of content and technical production. It improves the level of numeracy skills of the Grade 8 students based on the post-assessment results ranging from nearing mastery to mastery in measurement, calculating, patterns and relationships, and rational. Moreover, the respondents' numeracy skills and the personal related factors do not significantly correlate. The respondents' numeracy skills and the level of acceptability of the quality of the video tutorial lessons are not significantly correlated. Last but not least, there is a considerable change in the Grade 8 students' posttest results compared to their pretest scores after using the video tutorial lessons.

KEYWORDS: 5W1H model, numeracy, video tutorial lesson (VTLs).

I. INTRODUCTION

Students' Mathematics performance is one of the main concerns in Mathematics education. Many students perceive mathematics as one of the difficult core subjects to be learned. This negative thinking can be due to many factors that hinder their mathematics learning (Rameli & Kosnin, 2016). While Math looks challenging to Fleming (2019) because it requires time and effort. Many pupils don't have enough time for math classes, and when the teacher goes on, they fall behind. Many continue their studies of more difficult ideas on unstable ground. Villegas (2021) said in his paper that there were troubling indications of an education crisis in the Philippines, particularly in mathematics, even before the epidemic. The study from the Organization for Economic Co-operation and Development's (OECD) Program for International Student Assessment (PISA) in 2018 that showed Filipino pupils doing the worst among 79 nations in mathematics was the source of the crisis's most extensively reported news. Filipino 15-year-old pupils scored 353, compared to the 489 averages for both groups in the OECD. In PISA 2018, the Philippines performed worse in mathematics than the majority of the economy and participating nations.

The Philippines, on the other hand, came in last place out of 58 participating nations in the worldwide evaluation for Grade 4 mathematics pupils, according to Mendoza (2020). According to the Trends in International Mathematics and Science Study 2019 (TIMSS) by the International Association for the Evaluation of Educational Achievement, Filipino children in Grade 4 only received an average scale score of 297 in math, placing them last in this exam. The researcher wanted to determine if using VTL's will enhance the numeracy skills of the grade 8 non-numerate students. The researcher also wanted to determine if there is a significant relationship between the personal related factors and the numeracy skills of the respondents; if there a significant

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relationship between level of acceptability of the quality of video tutorial lessons and the numeracy skills of the respondents; and if there a significant difference between the pretest and posttest scores of the Grade 8 students after using the VTL's. Mathematics has some inherent difficulties due to its abstract and cumulative nature. Students requires a firm foundation; they may not be able to learn new things without previous knowledge. For many students' expectancy about the difficulty of Math is high, and personal value attached with Math is low (Gafoor & Kurukkan, 2015). In the Program for International Student Assessment (PISA), a student assessment of 15-year-old learners across 79 countries done by the Organization for Economic Co-operation and Development (OECD), the Philippines ranked in the low 70s in the 2018. Filipino students ranked low in Mathematics, with 353 points against a 489 OECD average (Paris, 2019). Meanwhile, in the article of Magsambol (2020), The Trends in International Mathematics and Science Study (TIMSS) 2019 shows the Philippines scored 'significantly lower' than any other country that participated in Grade 4 Math assessments. Filipino students lagged behind other countries in the international assessment for Mathematics for Grade 4. The Philippines only scored 297 in Mathematics which is significantly lower than any other participating country. The country also scored the lowest among all 58 participating countries for Mathematics. It entails that there is a need to improve the numeracy skills of the students. In the new normal setup in education, DepEd will implement remote or distance learning instead of face-to-face classes. This method delivers class through online, TV, radio and printed materials like the modules (Nicholls, 2020). In DepEd – Division of Quezon, modular distance learning is being implemented. One problem in the modular distance learning is if the parents were not able to finish their schooling. In modular distance learning, there will be a remote learning where in the modules will be done inside the learners' home. Parents will be the one to guide or assist the pupils (Fernando, 2020). According to Azubuike & Aina (2020), parents do not know how to teach their children because they do not have an adequate training to do so. In addition, most of them were not able to finish their schooling too. Some of the parents do not know how to read and write. Students tend to be less motivated in reading and answering their modules since what they only see are the printed modules. These factors add to the challenges in teaching Mathematics among the student. In Castañas National High School where printed modular is implemented, the researcher observed the challenges encountered in Mathematics subject by the Grade 8 students. It is evident in total mean percentage scores (MPS) wherein the mathematics got the lowest mean in all the eight subjects. Moreover, Grade 8 level got the lowest MPS among the other grade levels in Mathematics. It was also shown from School Year 2015-2021. In the recent administration of yearly numeracy test in the school, almost 50% of most of the sections are found non-numerates. It means that there is really a need to establish the numeracy skills of the Grade 8 students in Mathematics. Since Mathematics subject has the lowest among the subjects, and the Grade 8 Mathematics has the lowest MPS among the other grade levels, the researcher chose the Grade 8 Mathematics as the focus of this study. Increasing the numeracy skills is vital to the quality of education of the Grade 8 students in Mathematics. Thus, the researcher became interested in conducting this inquiry. The researcher made a video tutorial lesson guided by 5W1H model to enhance the numeracy skills of Grade 8 students because he believes that through videos students will be more motivated on their studies rather than reading the printed module alone (Panergayo & Aliazas, 2021). The video tutorial lessons were validated by three (3) master teachers in mathematics in Quezon province and two (2) mathematics experts from Laguna State Polytechnic University with the necessary permission from the authorities. The questionnaire which was adopted and modified from the study of Ali, et al. (2017) entitled "Instructional Video Evaluation Instrument" was used in validating the video tutorial lesson. Making of video tutorial lessons guided by 5W1H model is the main preference of the researcher because it can be access by the Grade 8 students during the modular distance learning. Based on the pre-test results, the researcher identified the competencies and skills where the students have weak foundation and understanding which were reflected has least mastery. The competencies and skills are length measurements, number place value, number in words, operation on numbers, using fractions, percentage, decimals and ratios (Medina & Del Rosario, 2022). The researcher carefully studied and planned to put these identified competencies in the Video Tutorial Lessons he made using the 5W1H model. The VTL's served as the learning resources used by the students. The video tutorial lessons guided the Grade 8 students in mastering the numeracy skills needed. It is significant before going to a higher grade level knowing that the lessons are framed in a spiral approach. Furthermore, the students were able to play, pause and replay unlimitedly the video tutorial lessons as they study from their respective homes.

Theoretical Framework

In this part, this study discussed the learning theory to guide the researcher's scientific understanding, explanation, and inference of the current research undertaking. The study is anchored to 5W1H Unified Integration Model. According to Akcil, et al. (2021), the focus of this model is on student learning, and it is based on analyzing and planning the process to increase learning of students. The components consist of why (reasons), what (purposes), how (modes), who (people), where (places), and when (sequence/timing).

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In making the video tutorial lessons, the researcher identified the reasons of making the video tutorial lessons such as what are the lesson objectives, how the lessons will be delivered, who are the persons involve in creating and validating the video tutorial lessons, where is the video tutorial lessons will be created and the place of the students and when making of the video tutorial lessons will be started and ended and the appropriate time for the students will access and watch the video tutorial lessons. The researcher followed steps in making the video tutorial lessons. First, he analyzed the scores of the non-numerate students in terms of mastered, nearing mastered and least mastered. Second, he identified the lessons and topics covered in the nearing mastered and least mastered elements of the numeracy skills. Then thirdly, the researcher planned how many videos will be made depending on the length of the topics. Fourth he used different kinds of resources like the internet as references for the topics and lessons. Fifth, researcher prepared lesson plans for the topics. Then sixth, the he planned and prepared the shooting of the video. Lastly, researcher recorded the video tutorial lesson. The quality or the level of acceptability of the designed video tutorial lessons were determined in terms of content and technical production. Lai, et al. (2016) claimed that video tutorials were created and made available as just-in-time support to enhance students' academic performance. It enriched students' learning experiences and enhanced their academic performance. They suggest that the learning benefits of the videos were instrumental to those students with average learning ability and those who struggled to understand the course materials during the class especially in their numeracy skills. Numeracy skills refers to the skills that deals with the computation of numbers of the learners in Mathematics. It includes the six components; measurement; calculating; patterns and relationships; rational, spatial and interpreting. The categorization of the mentioned competencies was crafted from Australian Curriculum (2021). These are competencies identified by the researcher aligned to Grade 8 Mathematics. Measurement is the numerical skills which refers to the size, length or amount of something in numbers. Calculating deals with the use of operations in computing and calculating numbers. Patterns and relationship deal with the identifying and spotting patterns and relations between numbers. Rational deals with the computation of numbers in fraction, decimal, percent, ratio and. Spatial skill deals with figures. Interpreting is the numerical skills that deals with the interpretation of statistical information. Moreover, in analyzing the numeracy skills needed, the researcher identified the academic needs of the Grade 8 students. The researcher was able to increase productivity of the lessons by preparing an objective to be organized. In addressing the numeracy skills parallel to the academic needs of the students, the researcher considered the lessons, the target students, the contents needed, the delivery of the lessons, and how it was delivered. Thus, the students were able to easily grasp the video tutorial lessons based on the students' learning needs. The theory and principle presented helped the researcher to arrive at the theoretical framework in conducting this study. The conceptual framework is summarized in the research paradigm presented below.

Conceptual Framework

In the independent variable we have the learning related factors of the respondents which are the instructional resources, learning environment and guidance and support. The numeracy skills measured thru pre-test in terms of the six components; measurement, calculating, patterns and relationship, rational, spatial and interpreting. Video tutorial lessons (VTL's) was made using the 5W1H model in terms of content and technical production. While the dependent variables are the four components which were the focused of the study where in the respondents got least mastered.

Statement of the Problem

This study attempted to use a video tutorial lesson in order to enhance the level of numeracy skills of Grade 8 students.

Specifically, it sought to answer the following questions:

1. How is the learning related factors received by the respondents in terms of:
 - 1.1 instructional resources;
 - 1.2 learning environment and;
 - 1.3 Parental support?
2. What is the level of numeracy skills of the Grade 8 students based on the pre-assessment results in terms of:
 - 2.1 measurement;
 - 2.2 calculating;
 - 2.3 patterns and relationships;
 - 2.4 rational;
 - 2.5 spatial and;
 - 2.6 Interpreting?
3. What is the level of acceptability of the quality of video tutorial lessons guided by 5W1H model in terms of:
 - 1.1 Content and;
 - 1.2 technical production?

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4. What is the level of numeracy skills of the Grade 8 students based on the post-assessment results in terms of:
 - 4.1 measurement;
 - 4.2 calculating;
 - 4.3 patterns and relationships; and
 - 4.4 Rational?
5. Is there a significant relationship between the learning related factors and the numeracy skills of the respondents?
 6. Is there a significant relationship between level of acceptability of the quality of video tutorial lessons and the numeracy skills of the respondents?
 7. Is there a significant difference between the pre-assessment and post- assessment scores of the Grade 8 students after using the video tutorial lessons?

Significance of the Study

The researcher believes that the result of the study will be beneficial to students, Mathematics teachers, school heads, and future researchers.

Students. Students' level of numeracy skills will be identified. They will be provided with appropriate learning material that will help them to cope with their difficulties and motivate them to study harder to overcome their weakness in Mathematics and improve their performance.

Mathematics Teachers. Teachers may use the result of the study as basis to identify the level of numeracy skills that need special attention in teaching their students. Data like scores in the tests may be used to identify students at risk and need remediation. The study is also helpful in planning and designing suitable video tutorial lessons guided by 5W1H model in teaching Mathematics that will fit the needs of every student in this time of COVID-19 pandemic.

School Heads. The result of the study may serve as the agent in improving instructional methods and identifying the needs of the students that triggered their difficulty in achieving good Mathematical skills. It may also help them plan appropriate interventions that will fit student's needs, especially to students with learning difficulty in Mathematics, and offer necessary instructional assistance like teacher trainings, seminars or workshops to uplift quality education.

Future Researchers. The present study can serve as a baseline data for future studies. It can also be a basis to explore other variables which will apply same method but in different learning areas.

Scope and Limitation

The researcher determined the numerates and non-numerates in Grade 8 students and use video tutorial lessons guided by 5W1H model on non-numerate students. To identify the numerates and non-numerates in Grade 8 students there was an administration of standardized assessment tool of the DepEd Division of Quezon to 276 Grade 8 students in Castañas National High School, Sariaya East District, Quezon. The standardized assessment tool categorized the 40 items standardized questionnaire of the Division of Quezon into six components adopting the learning continuum of Australian Curriculum (2021). This is to determine on what element the non-numerate students struggle. The six components are the measurement, calculating, patterns and relationships; rational, spatial reasoning, and interpreting. There was an identification of the numeracy skills of the Grade 8 students so as to classify them as numerates and non-numerates. Numerate students are those who got a score of 50 to 100 percent of the total number of item while the non-numerate are those who got a score of 49 percent and below of the total number of items. Among the non-numerates, there was classifications of the level of mastery of the six components. Mastery Least (0% – 49%), Nearing Mastery (50% - 74%) and Mastery (75% - 100%) are the mastery level of the numeracy skills. Among the six components, measurement, calculating, patterns and relationships, and rational were the focused of this study. It is because based on the results, these components have the least mastery level. Video tutorial lessons were made using 5W1H model for the use of non-numerate students of each of the four sections in Grade 8 students respectively. There was a total of 44 non-numerate students as the respondents. The content of the video tutorial was composed of lessons from the four components of numeracy skills which are least mastered by the students based on the test results (pre-test) of the students which needs further enhancement. It was followed by the utilization of the video tutorial lessons among the 44 non-numerate students. Afterwards, post-test was administered among them. Furthermore, this study identified the learning related factors of the respondents in terms of instructional resources, learning environment and parental support. The level of acceptability of the designed video tutorial lessons were determined in terms of content and technical production. The researcher also determined if there is a significant relationship between the learning related factors and the numeracy skills of the respondents; if there a significant relationship between level of acceptability of the quality of video tutorial lessons and the numeracy skills of the respondents; and if there a significant difference between the pre-test and post-test scores of the Grade 8 students after using the VTL's.

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II. METHODS

This study utilized descriptive developmental method of research employing the single group pretest and posttest design. The initial phase of the study involved the identification of who are the numerates and non-numerates among the grade 8 students using the standardized assessment tool of the Division of Quezon. It was administered among Grade 8 students in Castañias National High School in December 2021. This was followed by the preparation of video tutorial lessons using 5W1H model to enhance the numeracy skills of the non-numerate students. The final phase involved descriptive developmental method. The 44 non-numerate students were given treatment using the video tutorial lessons. After the experimentation, the students were subjected to posttest to find out if there is a significance difference between the pretest and posttest results.

Research population was utilized for choosing the respondents for the identification of the numeracy skills from Grade 8 students. There was a total of 267 respondents from Castañias National High School officially enrolled in School Year 2021-2022. These respondents answered the standardized assessment tool of the DepEd Division of Quezon to identify the numerates and non-numerates in Grade 8. The identification of numerate and non-numerate students in this study was conducted in Castañias National High School, Sariaya East District.

From the identified non-numerates using purposive sampling, 44 Grade 8 students served as respondents for testing the effectiveness of the video tutorial lessons guided by 5W1H model. Non-numerates are those students who got score of below 50%. Meanwhile, three (3) master teachers in mathematics in Quezon province and two (2) experts from Laguna State Polytechnic University served as the respondents for the acceptability of the video tutorial lessons.

RESEARCH INSTRUMENT

The following instruments were constructed and utilized in the conduct of this study:

- A. Standardized Assessment Tool. The standardized assessment tool served as the diagnostic test. It is a 40-item test adopted from the DepEd Division of Quezon to identify the numerates and non-numerates among the Grade 8 students.
- B. Video Tutorial Lessons (VTL's). The researcher made video tutorial lessons using 5W1H model based on the pre-test results of the non-numerate students. Then, the video tutorial lessons were used by the said students.

The researcher identified the topics covered in the video tutorial lessons. The result of the standardized assessment tool served as the basis for identifying the topics to be included in the video tutorial lessons. The items in standardized 40-item questionnaire were categorized as measurement; calculating, patterns and relationships, rational, spatial and interpreting.

The researcher visited the library, searched in the internet, read textbook and other related articles, and browsed the K 12 Mathematics module to gather information about the topic and making of video tutorial lessons. The video tutorial lesson has a brief explanation and preview of the topics included; defines the tasks that the learners need to undertake in order to develop the necessary skill which will help the learner measure his/her level of mastery at the end of the task.

The researcher consulted first his adviser for comments and suggestions. Initial revision was done after the consultation. Experts in the field of Mathematics were also consulted. Their comments were considered as basis for final revision and validation of the video tutorial lessons.

- C. Questionnaire on the Level of Acceptability of the Video Tutorial Lessons Guided by 5W1H model. The 4-point Likert Scale adopted from the study of Ali, et al. (2017) entitled "Instructional Video Evaluation Instrument" was utilized to determine the level of acceptability of the quality of video tutorial lesson. It was composed of 15 statements with four descriptive rating such as not acceptable, fairly acceptable, acceptable and highly acceptable. It was evaluated in terms of content and technical production. There were ten statements (10) for content and five (5) statements for technical production.

RESEARCH PROCEDURE

Upon the approval of the Oral Examination Committee, the researcher handed a letter of request to conduct the study to the Schools Division Superintendent (SDS) of the DepEd - Division of Quezon, Public Schools District Supervisor (PSDS) of Sariaya East District and to the school head of Castañias National High School. Afterwards, with the informed consent of the SDS, PSDS and the school head, Grade 8 advisers of Castañias National High School were informed regarding the administration of the questionnaire. For the first phase of data gathering procedure, the researcher collected the previous numeracy test result of grade 8 which was administered in December, 2021. Numeracy test is administered in school in all grade levels every year as instructed by DepEd division of Quezon using the standardized test. After gathering the necessary data, appropriate statistical treatment was applied and results will be presented, analyzed, and interpreted. Based from result of the standardized assessment tool for numeracy skills, the non-numerate students were identified. Using the result, the researcher started making the video tutorial lessons using the 5W1H model. Second phase of data gathering procedure involved investigating the effectiveness of the quality of video tutorial lessons made by the researcher. The researcher secured permission from the school heads and district supervisor for the validation of the video tutorial lessons by the forty-four (44) respondents, three (3) master teachers in mathematics in Quezon province and two (2) experts from Laguna State Polytechnic University. The acceptability of the material was determined with the use of a 12-

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item questionnaire for the respondents and 15-item for the experts in a 4-point Likert Scale. The acceptability of the material was determined in terms of content and technical production. The researcher approached the experts through personal and through the use of smart phone to answer the questionnaire for the acceptability of the material on February, 2022. Before the administration of the video tutorial lessons to the respondents, orientation to their parents or guardian are conducted to make sure that the parents or guardians of the respondents will be aware of the activity where in their children will be involved and also for the assurance that they will give support and cooperate with the said activity. The administration of the video tutorial lesson lasted from March to April, 2022. The 44 Grade 8 students used the video tutorial lessons in accordance to the weekly home learning plan. The researcher coordinated with the student together with their parents or guardian to monitor and assure that the respondents will watch the video properly and on time. For the third phase of data gathering procedure, post-test for 44 Grade 8 students were administered in May, 2022. Scores were tallied, tabulated and analyzed to identify the significant difference between the pre-test and post-test of the 44 Grade 8 students. Moreover, the researcher also determined the learning related factors of the respondents in terms of instructional resources, learning environment and parental support. The researcher identified if there is a significant relationship between the learning related factors and the numeracy skills of the respondents; and if there is a significant relationship between the level of acceptability of the quality of video tutorial lessons and the numeracy skills of the respondents.

III. RESULTS

Table 5. Learning related Factors in terms of Instructional Resources

Available Learning Resources at home	Frequency	Percent
1. Printed module	38	86%
2. Mathematics textbook	24	55%
3. Basic cellphone	11	25%
4. Touchscreen cellphone	31	70%
5. Tablet	4	9%
6. Computer	3	7%
7. Internet	11	25%
8. Television	26	59%

The table shows the instructional resources that are available to use by the respondents in Castañás National High School. There were 44 students who answered the questionnaire. Printed module got the Rank 1 with a frequency of 38 or 86%. It is followed by touchscreen cellphone as Rank 2 with a frequency of 31 or 70%. Lastly, it is followed by television with a frequency of 26 or 59%.

Table 6. Learning related Factors in terms of Learning Environment

The place where I study and answer my printed module is:	Mean	Std. Deviation	Interpretation
1. well lighten	2.75	1.10	Good
2. quiet enough	2.55	1.11	Good
3. free from destruction	2.75	1.12	Good
4. has proper ventilation	2.36	1.22	Poor
5. I am comfortable enough where I do my studies and answering my printed module	2.77	1.27	Good
Mean	2.64	0.73	Good

3.25 – 4.00 – Very good

2.50 – 3.24 – Good

1.75 – 2.49 – Poor

1.00 – 1.74 – Very poor

The table shows the learning environment of the respondents in Castañás National High School. It got an overall mean of 2.64 with an interpretation of “good.” “I am comfortable enough where I do my studies and answer my printed module” got the highest

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mean of 2.77 with an interpretation of “good.” It is followed by well lighten, free from destruction and quiet enough obtained a mean ranging from 2.55 to 2.75, all having an interpretation of “good.”

Table 7. Learning related Factors in terms of Parental Support

	Mean	Std. Deviation	Interpretation
1. get my printed modules from the school on time and check them	2.73	1.15	Good
2. provide me what I need in answering my printed modules (like bond/graphing/ pad paper etc.)	2.84	1.01	Good
3. help me in answering my printed modules	2.27	0.90	Poor
4. monitor and check if I do my activities properly, correctly and completely.	2.25	1.12	Poor
5. check and submit to school my answered printed module on time	2.82	1.23	Good
Mean	2.58	0.66	Good

3.25 – 4.00 – Very good

2.50 – 3.24 – Good

1.75 – 2.49 – Poor

1.00 – 1.74 – Very poor

The table presents the parental support that the respondents in Castañas National High School gets in their studies in answering their printed module. It obtained an overall mean of 2.58 with an interpretation of “good.” Based on the answers of the respondents, in terms help or support they get at home is not what they are expecting and not that enough for their studies. It is also heard in the story of many parents or guardians of the students or even the students themselves during some of our conversations through cellphones and even in person in times of module distribution and retrieval saying that their parents sometimes don’t have time to get their printed module in school on time and to check, monitor and submit to school because they are too busy in their work like fishing. Some of them also wanted to help answering their children in their studies but what they can do? they don’t even know how to read correctly or they don’t understand what is the printed module saying. “Provide me what I need in answering my printed modules” got the highest mean of 2.84 with an interpretation of “good.” It is followed by “get my printed modules from the school on time and check them” and “check and submit to school my answered printed module on time” got the mean ranging from 2.73 to 2.82, both with an interpretation of “good.”

Table 8. Pre-test Numeracy Skills of the Respondents

Score Range	Measurement		Calculating		Patterns and Relationships		Rational		Spatial		Interpreting		Interpretation
	F	%	F	%	F	%	F	%	F	%	F	%	
75% -100%	--	--	--	--	--	--	--	--	30	68	30	68	Mastery
51% - 74%	--	--	--	--	--	--	--	--	14	32	14	32	Nearing Mastery
0% - 50%	44	100	44	100	44	100	44	100	--	--	--	--	Least Mastered
TOTAL	44	100	44	100	44	100	44	100	44	100	44	100	

The table shows the pre – assessment results in the numeracy skills. First, it shows in the column of the component of measurement that 44 (100%) or all of them fall on least mastered index. It has a mean of 25.42 percent with an SD of 8.28. Based on the scores of the respondents their mastery in measurement is not that good specially in computation of measurement like length. Even the basic like simple units use in measurements, some of them don’t clearly understand it. It means that no one among them is on the nearly mastered or mastered index in this component. It means that the respondents need a teacher’s intervention like the use of 5W1H based video tutorial lesson to improve their academic performance in terms of measurement.

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Second, it shows in the column of calculating that 44 (100%) or all of them fall on least mastered index. It has a mean of 24.81 percent with an SD of 7.83. They were considered as non-numerates in this aspect. This indicates that none of them are on the mastery or nearing mastery index for this component. Based on the answers and scores of the respondents, they can hardly understand the concepts in calculating such as place value and number in words. Based also on the results, many of them are good in operation on numbers but when it comes to a more complex questions, they become confused with it. Even in word problems they having a hard time getting the answer. It implies that for the respondents' academic performance to improve in terms of calculating, a teacher's involvement is required, such as the usage of a video tutorial lessons guided by 5W1H model. Thirdly, it demonstrates in the column of patterns and relationships that 44 of them, or all of them, fall under the least-mastered index. It has a mean of 25.63 percent with an SD of 8.13. This shows that none of them are on the index of mastery or nearing mastery for this component. Based on the answers and scores of the respondents, many of them are having difficulties in arranging decimals and fractions from lowest to highest. They are considered as non-numerates. It suggests that instructor engagement, such as utilization of video tutorial sessions guided by 5W1H model is necessary for the respondents' academic performance to improve in terms of patterns and relationships. Fourthly, it reveals in the column of rational that 44 of them, or all of them, fall under the category of least mastered. It has a mean of 24.81 percent with an SD of 9.08. This means that none of them are included on the index of people who have achieved or almost mastered this component. Based on the results, indicates that in terms of rational, the respondents' performance in solving mathematics problems involving fractions, percentage, decimals and ratios is low. They are non-numerates on this part. It means that a teacher's engagement is necessary for the respondents' academic performance to improve in terms of rational, such as through the use of video tutorial sessions. Fifthly, it shows in the column of spatial that 30 or 68% of them fall on mastery index and 14 or 32% are on nearing mastery. It has a mean of 81.11 percent with an SD of 7.38. Based on the answers of the respondents on the pretest, they are very good when it comes to identifying, classifying and organizing figures. It indicates that none of them are on the component's least-mastered index that is why this is not the focus of the study. Then finally, it reveals in the column of interpreting that 14 or 32% of them are reaching mastery and that 30 or 68 percent of them fall under the mastery index. It has a mean of 80.42 percent with an SD of 9.13. Based on the answers of the respondents on the pretest, they are very good when it comes to identifying, classifying and organizing data such as temperature, weather report and the like. It means that none of them are included on the index of the component with the least mastery that is why it is not the focus of the study.

Table 9. Respondents' level of acceptability of the quality of the Video Tutorial Lessons in terms of the content

	Mean	Std. Deviation	Interpretation
1. I am motivated watching the video.	3.75	0.44	HA
2. The video lesson will help me answering my activities in mathematics	3.75	0.44	HA
3. The video lesson will help me for better understanding the topic	3.82	0.39	HA
4. The video lesson gave me new understanding that I don't have before about the topic.	3.84	0.37	HA
5. The video lesson gave me more confidence about the topic	3.86	0.35	HA
6. I clearly understand the discussion	3.82	0.39	HA
Mean	3.81	0.11	HA

3.25 – 4.00 - *Highly acceptable (SA)*

2.50 – 3.24 – *Acceptable (A)*

1.75 – 2.49 – *Slightly acceptable (LA)*

1.00 – 1.74 – *Not Acceptable (NA)*

The table shows the level of acceptability of the students on the quality of the video tutorial lessons in terms of its content. It obtained an overall mean of 3.81 with an interpretation of "highly acceptable." It means that the respondents like the quality of the video in terms of content. It is because the videos gave them more confidence about the topic. It provides them new understanding that they do not have before. They clearly understand the discussion because of the simplified terms used by the teacher. Considering the overall SD result of 0.11, it means that the responses of the respondents did not quite differ from the others. Thus, it depicts that the video tutorial lesson is highly acceptable to all of them. "The video lesson gave me more confidence about the topic" got the highest mean of 3.86 with an interpretation of "highly acceptable." It is followed by "the video lesson

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gave me new understanding that I don't have before about the topic" garnering a mean of 3.84 with an interpretation of "highly acceptable." Then, it was followed by "the video lesson will help me for better understanding the topic" and "I clearly understand the discussion," both with a mean score of 3.82 with an interpretation of "highly acceptable."

Table 10. Experts' level of acceptability of the quality of the Video Tutoria Lesson in terms of the content

	Mean	Std. Deviation	Interpretation
1. The content of the video is accurate and up-to-date.	4.00	0.00	HA
2. The content of the video is generally useful. It stimulates, motivate and inform the learner to act on the information that was being presented	3.80	0.45	HA
3. The video is bias-free, including stereotyping with regard to age, sex, ethnicity, race, physical impairment, values, dress, language or social class.	3.80	0.45	HA
4. The video begins with motivating introduction to stimulate interest. The objectives or key elements made clear in the introduction	4.00	0.00	HA
5. The content detail controlled to promote understanding. The video simplifies complex tasks and avoid introducing extraneous information. It does not cover too much material or introduce too much detail	3.80	0.45	HA
6. The video suggests methods for the learner to apply the newly acquired knowledge. The suggestions for practice of what's being discussed was considered	3.60	0.55	HA
7. The video allows for learner reflection	3.60	0.55	HA
8. The video meets the learning objectives and needs of the learner. The video visually depicted fit the learning objectives.	4.00	0.00	HA
9. The video is conducive to learner interaction	4.00	0.00	HA
10. The video can be easily integrated into the learning environment by adding emphasis to or supplementing more traditional methods. The video brings remote experiences and places to the learner.	4.00	0.00	HA
Mean	3.84	0.05	HA

3.25 – 4.00 - *Highly acceptable (SA)*

2.50 – 3.24 – *Acceptable (A)*

1.75 – 2.49 – *Slightly acceptable (LA)*

1.00 – 1.74 – *Not Acceptable (NA)*

The table shows the level of acceptability of the experts on the quality of the video tutorial lessons in terms of its content. It obtained an overall mean of 3.84 with an interpretation of "highly acceptable." It means that the experts like the quality of the video in terms of content. It is because the videos are accurate and up-to-date. It is motivating and interactive. It meets the learning objectives and address the needs of the students. "The video meets the learning objectives and needs of the learner; the video visually depicted fit the learning objectives," the video is conducive to learner interaction," "the video can be easily integrated into the learning environment by adding emphasis to or supplementing more traditional methods; the video brings remote experiences and places to the learner," "the content of the video is accurate and up-to-date," and "the video begins with motivating introduction to stimulate interest; the objectives or key elements made clear in the introduction" got the highest mean of 4.00, all with an interpretation of "highly acceptable."

Table 11. Respondents' level of acceptability of the quality of the Video Tutorial Lesson in terms of the Technical Production

	Mean	Std. Deviation	Interpretation
1. The brightness of the video is good enough	4.00	0.00	HA
2. The quality of the audio is clear enough for better understanding.	3.86	0.35	HA

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3. The size and style of the fonts are good enough to read and understand.	3.86	0.35	HA
4. There is no background noise that destructs me from watching the video lesson.	3.82	0.39	HA
5. The music and sound is enough to catch my interest to keep watching the video lesson.	3.73	0.45	HA
6. The speed of the narration is slow enough to be understood	3.75	0.44	HA
Mean	3.83	0.15	HA

3.25 – 4.00 - *Highly acceptable (SA)*

2.50 – 3.24 – *Acceptable (A)*

1.75 – 2.49 – *Slightly acceptable (LA)*

1.00 – 1.74 – *Not Acceptable (NA)*

The table shows the level of acceptability of the students on the quality of the video tutorial lessons in terms of its technical production. It obtained an overall mean of 3.83 with an interpretation of “highly acceptable.” It means that the respondents like the quality of the video in terms of technical production. It is because of the quality of the videos. It has good brightness, the audio is clear, the size and style of the fonts are good and there is no unnecessary noise in the video. “The brightness of the video is good enough” got the highest mean of 3.86 with an interpretation of “highly acceptable.” It is followed by “the quality of the audio is clear enough for better understanding” and “the size and style of the fonts are good enough to read and understand,” both got the mean of 3.86 with an interpretation of “highly acceptable.” Then, it was followed by “There is no background noise that destructs me from watching the video lesson” obtaining a mean score of 3.82 with an interpretation of “highly acceptable.”

Table 12. Experts’ level of acceptability of the quality of the Video Tutorial Lesson in terms of the Technical Production

	Mean	Std. Deviation	Interpretation
1. The video is well-planned, organized, and structured. The technology is transparent and non-threatening to the learner. The video demonstrates its ability to transcend space and time.	4.00	0.00	HA
2. The video avoids content not related to the subject matter stated in the introduction	3.80	0.45	HA
3. The camera is looking at the scene from the learners’ point of view. The scene changes appear to be appropriate.	3.80	0.45	HA
4. The vocabulary of the narration is appropriate for the intended audience. The speed of the narration is slow enough to be understood. The music fits for the visual effects or audio narration. The background noises used are conducive for learning. The sound effects used to add emphasis to the visual tract of a video to enhance learning.	4.00	0.00	HA
5. The audio-visual is combined well. There are variety of differing types of sounds and visuals to attract and hold attention.	3.80	0.45	HA
Mean	3.88	0.11	HA

3.25 – 4.00 - *Highly acceptable (SA)*

2.50 – 3.24 – *Acceptable (A)*

1.75 – 2.49 – *Slightly acceptable (LA)*

1.00 – 1.74 – *Not Acceptable (NA)*

The table shows the level of acceptability of the experts on the quality of the video tutorial lessons in terms of its technical production. It obtained an overall mean of 3.88 with an interpretation of “highly acceptable.” It means that the experts like the quality of the video in terms of technical production. The videos' high quality is the reason. There is no extraneous noise in the movie, nice brightness, clear audio, decent text size, and good font style. “The video is well-planned, organized, and structured; the technology is transparent and non-threatening to the learner; the video demonstrates its ability to transcend space and time” and “the vocabulary of the narration is appropriate for the intended audience; the speed of the narration is slow enough to be

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understood; the music fits for the visual effects or audio narration; the background noises used are conducive for learning; the sound effects used to add emphasis to the visual tract of a video to enhance learning” got the highest mean of 4.00, both with an interpretation of “highly acceptable.”

Table 13. Post-test Numeracy Skills of the Respondents

Score Range	Measurement		Calculating		Patterns and Relationships		Rational		Interpretation
	F	%	F	%	%	F	F	%	
75% -100%	20	45	27	61	28	64	19	43	Mastery
51% - 74%	24	55	17	39	16	36	25	57	Nearing Mastery
0% - 50%	--	--	--	--	--	--	--	--	Least Mastered
TOTAL	44	100	44	100	44	100	44	100	

The table shows the post – assessment results in numeracy skills. First, it shows in the column of measurement that 20 or 45% of them fall on mastery index and 24 or 55% are on nearing mastery. It has a mean of 78.34 percent with an SD of 8.12. It means that no one among them is on the least mastered index in this component. It means that students watching the VTL’s made by the teacher using 5W1H model can enhance the respondents' performance in terms of measurement. They can now understand the concepts of length measurement. Based on the results watching the VTL’s they can now also convert from one unit into other units of measurement. Secondly, it shows in the column of calculating that 27 or 61% of them fall on mastery index and 17 or 39% are on nearing mastery. It has a mean of 80.06 percent with an SD of 7.23. It means that no one among them is on the least mastered index in this component. It means that students watching the VTL’s made by the teacher using 5W1H model can enhance the respondents' performance in terms of calculating. They can now understand the concepts in calculating such as place value and number in words. Based on the results watching the VTL’s they can now also use operations on numbers in words correctly. Thirdly, it shows in the column of patterns and relationships that 28 or 64% of them fall on mastery index and 16 or 36% are on nearing mastery. It has a mean of 79.43 percent with an SD of 8.67. It indicates that none of them are on the component's least-mastered index. This indicates that, in terms of patterns and relationships, students watching the VTL’s made by the teacher using 5W1H model can enhance the respondents' performance in terms of patterns and relationships. They can now understand the concepts of patterns and relationships on numbers in decimals and fractions. Based on the results watching the VTL’s they can now solve word problems using decimal and fractions. Then finally, it shows that 19 or 43% of them fall on mastery index and 25 or 57% are on nearing mastery. It has a mean of 78.86 percent with an SD of 6.83. It indicates that none of them are on the component's least-mastered index. Based on the results, indicates that in terms of rational, students watching the VTL’s made by the teacher using 5W1H model can enhance the respondents' performance in solving mathematics problems involving fractions, percentage, decimals and ratios as there is no more non-numerates on this aspect. The data suggests that using video instructional session on those four components particularly like this one which was made using 5W1H model needs to be continued. It is to assist the other left to reach the mastery level. The advantage of the VTL’s is that the respondents may view it again and again. Using videos instead of only printed materials results in a more interesting sensory experience. They offer a convenient source that is accessible from anywhere. Videos aid with memory recall. They are a huge help in studying all topics, especially arithmetic concepts. They improve communication and computer literacy skills (Next Thought Studios, 2020). Both the 5W1H model and the Video tutorial lessons had helped the students in increasing their numeracy skills. The researcher helped by the model in making the VTL’s which had helped the students in increasing their performance in mathematics. Brame (2017) claimed that video tutorial lessons provided significant means to improve students’ numerical skills. Carmichael, et al. (2018) claimed that shorter videos can increase median viewing times for videos, can improve learning outcomes and the likelihood that repeat usage will occur.

Table 14. Significant relationship between the learning related factors and the numeracy skills of the respondents

Learning related factors	Least Mastered Numeracy Skills			
	Measurement	Calculating	Patterns and relationships	Rational
Instructional resources	.050	-.023	.025	.078
Learning environment	-.166	.003	.185	-.226
Parental support	.107	.076	.018	.031

**The difference is significant at 0.05 level*

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This table shows the significant relationship between the learning related factors and the least mastered numeracy skills of the respondents. The data revealed in the learning related factors and the least mastered numeracy skills of the respondents is not significant at 0.05 level. Thus, the researcher accepted the null hypothesis. It means that there is no significant relationship between the learning related factors and the least mastered numeracy skills of the respondents. The data implied that the data of learning related factors and the least mastered numeracy skills of the respondents do not have any relation at all. They are independent variables which do not affect each other. It means that the teacher may focus on their intervention such as the utilization of video tutorial lessons to improve the least mastered competencies of the respondents in particular to measurement, calculating, patterns and relationships, and rational.

Table 15. Significant relationship between level of acceptability of the quality of video tutorial lessons and the numeracy skills of the respondents

Quality of Video Tutorial Lessons	Least Mastered Numeracy Skills			
	Measurement	Calculating	Patterns and relationships	Rational
Content	-.160	.156	.252	.039
Technical Production	.116	-.019	.095	.237

This table shows the significant relationship between the level of acceptability of the quality of video tutorial lessons and the numeracy skills of the respondents. The data revealed in the content and technical production is not significant at 0.05 level. Thus, the researcher accepted the null hypothesis. It means that the level of acceptability of the quality of video tutorial lessons and the numeracy skills of the respondents is not significantly correlated. The data implied that the data of level of acceptability of the respondents and the experts do not have any relation at all. They are independent type of evaluator on level of acceptability which does not affect each other though it was revealed in Table 10 to 13 that the respondents and experts strongly accepted the quality of video tutorial lessons in terms of content and technical production.

Table 16. Significant difference between the pretest and posttest scores of the Grade 8 students after using the video tutorial lessons

Numeracy Skills	Pretest		Posttest		t	df	Sig. (2-tailed)
	Mean	Std. Deviation	Mean	Std. Deviation			
Measurement	28.64	7.21	76.98	12.36	-22.001	43	.000
Calculating	34.45	5.86	78.73	14.72	-18.919	43	.000
Patterns and relationships	30.75	9.19	76.98	13.52	-19.961	43	.000
Rational	26.36	10.14	74.77	13.38	-19.731	43	.000

**The difference is significant at 0.05 level*

The table shows the significant difference between the pretest and posttest scores of the Grade 8 students after using the video tutorial lessons. All the numeracy skills in terms of measurement, calculating, patterns and relationships and rational got a t-value of 18.919 to 22.001 greater than the 0.05 significance level. Thus, the researcher rejected the null hypothesis. It means that the pretest and posttest scores of the Grade 8 students after using the video tutorial lessons is significantly different.

It is evident from the pretest result that the respondents got a level of least mastered in Table 10 to 13. Then, they got a level of nearing mastery to mastery level in the posttest result revealed in Table 19 to 22. Moreover, it is also shown in the mean scores of the pretest in terms of measurement, calculating, patterns and relationships and rational got 26.36 to 34.45 which got higher during the posttest having a mean score of 74.77 to 78.73.

IV. DISCUSSION

The researcher determined the numerates and non-numerates in Grade 8 students and use video tutorial lessons guided by 5W1H model on non-numerate students. There was an administration of standardized assessment tool of the Division of Quezon to 276

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Grade 8 students in Castañás National High School, Sariaya East District, Quezon. The standardized assessment tool categorized the 40 items standardized questionnaire of the Division of Quezon into six elements adopting the learning continuum of Australian Curriculum (2021). The six elements are the measurement, calculating, patterns and relationships; rational, spatial reasoning, and interpreting. Among the non-numerates, there was classifications of the level of mastery of the six elements. Mastery Least (0% – 49%), Nearing Mastery (50% - 74%) and Mastery (75% - 100%) are the mastery level of the numeracy skills. Among the six elements, measurement, calculating, patterns and relationships, and rational were the focused of this study. Video tutorial lessons were made for the use of non-numerate students of each of the four sections in Grade 8 students respectively. There was a total of 44 non-numerate students as the respondents. It was followed by the utilization of the video tutorial lessons among the 44 non-numerate students. Afterwards, post-test was administered among them. Furthermore, this study identified the learning related factors of the respondents in terms of instructional resources, learning environment and parental support. The level of acceptability of the designed video tutorial lessons were determined in terms of content and technical production. The researcher also determined if there is a significant relationship between the learning related factors and the least mastered numeracy skills of the respondents; if there a significant relationship between level of acceptability of the quality of video tutorial lessons and the numeracy skills of the respondents; and if there a significant difference between the pre-test and post-test scores of the Grade 8 students after using the video tutorial lessons.

The top three instructional resources of the respondents were printed module, touchscreen cellphone and television. The respondents answered that learning environment and parental supports is a good as their learning related factors. In the pretest assessment result, the respondents do not have mastery in measurement, calculating, patterns and relationships, and rational. They ranged from nearing mastery to mastery level in spatial and interpreting. The level of acceptability of the respondents and experts on the quality of video tutorial lessons guided by 5W1H model in terms of content and technical production. The level of numeracy skills of the Grade 8 students based on the post-assessment results range from nearing mastery to mastery in terms of measurement, calculating, patterns and relationships, and rational. There is no significant relationship between the learning related factors and the numeracy skills of the respondents. There is no significant relationship between level of acceptability of the quality of video tutorial lessons and the numeracy skills of the respondents. There is a significant difference between the pretest and posttest scores of the Grade 8 students after using the video tutorial lessons. Based on the findings and conclusions made, the following recommendations are hereby offered; first for the school administrators, they may continuously encourage the teachers to address the numeracy skills of the students in mathematics using the standardized assessment tool of the Division of Quezon. They may adopt the utilization of the video tutorial lessons specifically designed for Grade 8 students. Second for the teachers they may adopt the video tutorial lessons, the output of this study, to improve the numeracy skills of the Grade 8 students in terms of measurement, calculating, patterns and relationships, rational, spatial and interpreting. They may also use this in other grade level whenever it is applicable for any intervention or enrichment activities. Then lastly for future researchers, that another research be conducted involving a much wider population in terms of experimentation and acceptability of the material. Also, to utilize different research design such as mixed method (qualitative-quantitative approach) to further strengthen the findings of the study.

The findings revealed that the personal related factors for instructional resources of the respondents were printed module, touchscreen cellphone and television. The respondents replied that learning environment and parental supports is good as their personal related factors. In the pretest result, the respondents do not have mastery in measurement, calculating, patterns and relationships, and rational. On the other hand, they ranged from nearing mastery to mastery level in spatial and interpreting. Further, the level of acceptability of the respondents and experts on the quality of VTL's using 5W1H model in terms of content and technical production. It improves the level of numeracy skills of the Grade 8 students based on the post-assessment results range from nearing mastery to mastery in terms of measurement, calculating, patterns and relationships, and rational. Moreover, there is no significant relationship between the personal related factors and the numeracy skills of the respondents. There is no significant relationship between level of acceptability of the quality of video tutorial lessons and the numeracy skills of the respondents. Lastly, there is a significant difference between the pretest and posttest scores of the Grade 8 students after using the video tutorial lessons.

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