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FUNCTIONS AS PREREQUISITE TO BASIC CALCULUS: WHAT MATHEMATICAL SKILLS CAUSE STEM STUDENTS' DIFFICULTIES?

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Abstract: **Background: Biliran Division, like many other divisions within the Philippines has always remained true to its mission and vision in upholding just and quality education for all Filipino learners. This study would provide a solid evidence for curriculum developers, supervisors, and Mathematics teachers to ponder on the STEM students' difficulties which can influence their mathematical skills. Thus, the general purpose of this study was to determine the difficulties met prior to Functions as a prerequisite to Basic Calculus.**
Methods: **This study utilized mixed quantitative and qualitative method. There were 58 participants who were included from this study. The students were given a validated researcher-made test questionnaire that underwent pilot testing, checking process and finalizing of the questions by the co-researchers from the public school teachers and the research adviser. After the test, the participants were interviewed. The transcripts underwent content analysis and peer debriefing.**
Result: **The study reveals that the STEM students had a poor Language skill and Arithmetic skill. In a specific sub-skill in Language skill—*understanding the objective*—obtained 63.8% of the population while sub-skill in Arithmetic skill—*Procedural knowledge*— obtained 51.7%, thus considered as the critical point among the identified 4 skills.**
As the result of the content analysis of the students' response during their interview, the result shows a positive alignment of the result of the data analysis as students had a difficulty of understanding the objective and the difficulty of solving a problem which is in line with poor of language skills and Arithmetic skills respectively.

Keywords: **Functions, Basic Calculus, STEM, Procedural knowledge, Number fact skill, Arithmetic skill, Information skill, Language skill.**

I. INTRODUCTION

"Difficulty in learning Calculus is rooted in difficulty in learning concepts."

Calculus is one of the major subjects that is prerequisite to the students as it will bring them into the desired disciplines in terms of Science, Technology, Engineering, and Mathematics (STEM), and even to other Social Sciences and Businesses. Thus, it is a need for STEM students to learn Calculus, as it helps every learner to be critical thinkers and problem solvers as it is relevant to the four exits of Education under the Philippine K-12 curriculum. What if students failed to understand and appreciate the relevance that it can give?

It is undeniable that Calculus has been a subject most feared by students due to its abstractness and complexity, thus called as the "purest of Mathematics". As reported by different researchers, Calculus is considered as a difficult subject to teach and for students to learn (Chan, 2009). Hence, it requires a strong foundation of the basic concepts including Functions.

As revealed from the study, the majority of the students didn't accurately answer the proportional reasoning and only 9% of the 631 students answered the function word problem (Carlson, Madison, & West, 2015). Furthermore, students also experienced difficulties in defining a simple limit of a function (Tsvigu, 2007).

It is a clear manifestation that every student must master the basic foundation of Calculus or at least surpasses the level of "closely approximating mastery" to be able to learn it easily. Once the students failed to learn it, a negative result is expected from the teacher's assessment.

As cited from one of the researches, as students actively engage in the learning process there would be a greater occurrence of learning (Yoon, Kensington-Miller, Sneddon , & Bartholomew, 2011). However, how could the students actively engage in the learning process of the Calculus subject if at the first place STEM students failed to learn the basic skills that is prerequisite to the subject itself?

The highlight of instruction is to support students' construction of relationships between small pieces of information rather than encouraging them to execute commands without explicit reasoning (Tsvigu, 2007).

That's why the researcher would like to emphasize the learning of basic concepts as one way in learning the broadest sense of the Calculus subject. The researcher would also like to determine the difficulties met by STEM students in Division of Biliran prior to Functions as a prerequisite to Basic Calculus in order to help teachers and administrators to keep an eye on all the concepts not just Basic Calculus but all the branches of Mathematics that require basic knowledge to successfully understand the subject.

Objectives of the study

The general purpose of this research was to determine the difficulties met by Science, Technology, Engineering, and Mathematics (STEM) students in the Division of Biliran prior to Functions as a prerequisite to Basic Calculus.

Thus, specifically answers the following objectives:

1. Determine the Demographic profile of the students in terms of the following:
    1.1 Gender
    1.2 Age
    1.3 School
2. Identify the following least learned skills that cause students' difficulties prior to functions as prerequisite to Basic Calculus:
    2.1 Number fact skill
    2.2 Arithmetic skill
    2.3 Information skill
    2.4 Language skill
3. Ascertain students' experience in difficulties met in answering the researcher-made test.

Significance of the Study

The researcher firmly believes that this study has significant value to the following individuals:

School administrators. The results of this study may challenge the school administrators to keep abreast of the new techniques and strategies in teaching Mathematics to pave the way for a better system of education relevant to the needs of the changing times. The result of this study will also help school administrators to come up with new and fresh ideas to address the underlying difficulties of the students in order to successfully cater the needs of the students.

Mathematics teachers. To encourage the students to keep learning without the teachers' guidance. Let them understand that learning Mathematics does not occur only at school and also instil the value of self-independence. And from this study, Math teachers' will come to think of a new way or method to address the gap of the STEM students and to acquire the needed skills for them in the said subject.

Students. Results of this study shall eventually help students to determine the skills needed for learning Basic Calculus so that they can monitor themselves the needed things that they have to improve or master.

Parents. The parents will help their children be convinced to continue learning and discover new things for their future use.

Definition of terms

***Functions*-** These are topics that are prerequisites in learning Basic Calculus as the specialized subject in Senior high school students. The following topics under functions are Linear functions, Applications of Linear functions, Exponential function, and Logarithmic functions.

***Basic Calculus*-** can be classified into informal ideas of rate of change and the rules of Differentiation with integration as the inverse process, with calculating areas, volumes etc. as applications of integration.

***STEM*-** a strand offering for Senior High School students who will take Engineering, Science, and other health-related courses. STEM stands for Science Technology, Engineering Mathematics.

***Procedural knowledge*-** is an essential skill used in problem solving and solely for the actions provided upon solving the problem. Additionally, it is the successful learning of the "how" or the procedure in dealing an equation.

***Number fact skill*-** proficiency of number facts, tables, operations and mathematics principle.

***Arithmetic skill*-** accuracy and logarithm in computational and mathematical working-procedure

***Information skill*-** it is an expertise to connect information to a learnt concepts, operational, and the experiences as well as the expertise to transfer information into action and transform problems into mathematical sentences.

***Language skill*-** proficiency of the mathematical terms and relevance of mathematical information.

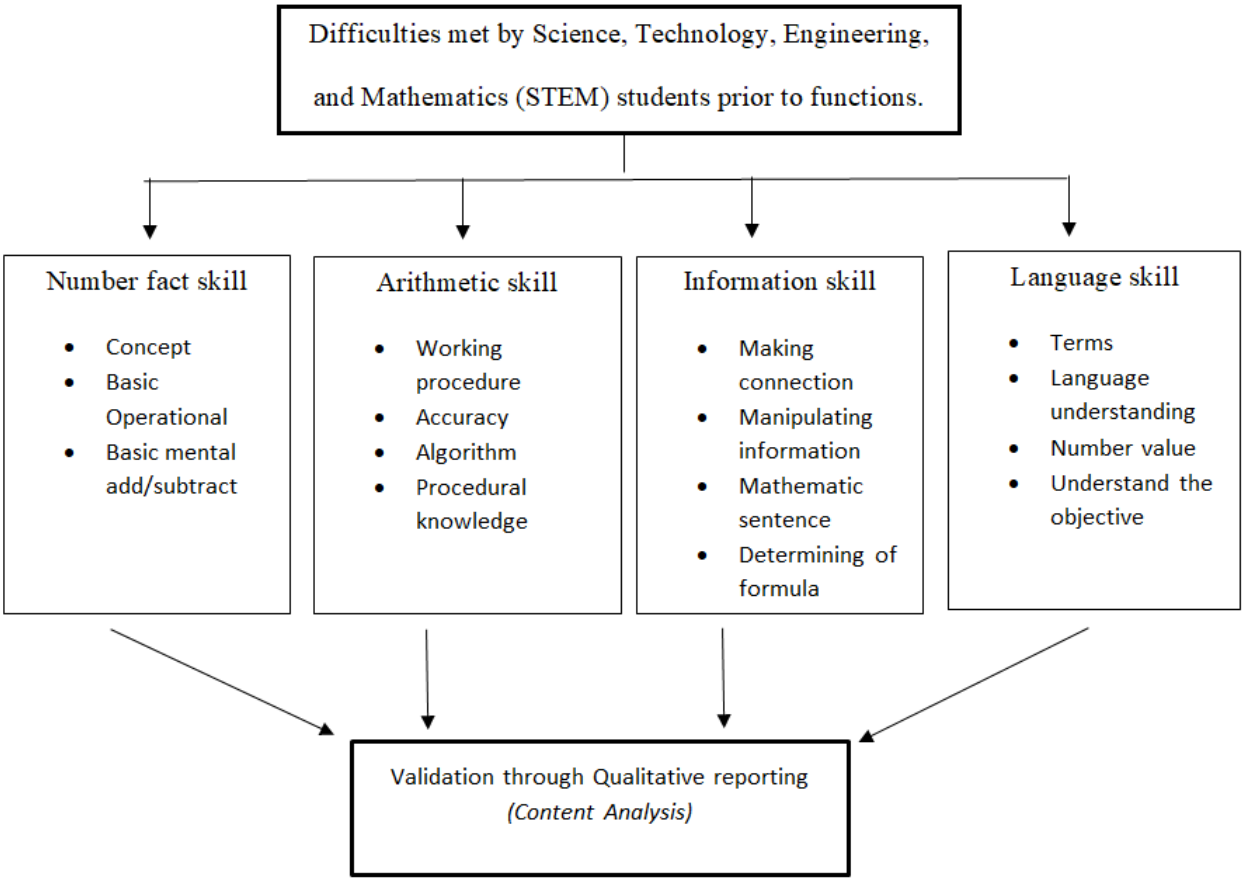

Figure 1: Paradigm

Paradigm. This study was conducted to determine the difficulties met by STEM students in the Division of Biliran prior to Functions as a prerequisite to Basic Calculus.

As seen in figure 1, the difficulties of STEM students can be vividly identified by identifying their least learned skills. The students were given researcher-made test which focuses only on functions as its primary concern regarding its importance as students will be grasping the topics about Basic Calculus. The identified skills were adopted from the study

of Tarzimah Tambychik and Thamby Subahan Mohd Meerah entitled *"Student's difficulties in Mathematics Problem solving: what do they say?"*

Number fact skill covers students' knowledge about the concept, basic operation, and basic mental add/subtract. Arithmetic skill, on the other hand, covers the working procedure, accuracy of the number, algorithm, and Procedural knowledge. These two skills intertwined with each other as Arithmetic skill dependently rely on the students' number fact skills.

Furthermore, information skill and language skills innately talk about how students manipulated and do the process of solving the problem or even mathematical equations. Under Information skill are making connection, manipulating information, mathematical sentence, and determining formula. While language skill is mastery of terms, language understanding, number value, and understanding the objective.

This research didn't only seek to answer quantitatively but also qualitatively through content analysis as students were interviewed about their experiences while answering the test. Furthermore, to be able to achieve the validation of the qualitative result the researcher employed one of the elaborated six techniques of to ensure trustworthiness—Peer debriefing.

Peer debriefing is also best known as "peer reviewing", the summary of the result of the interviews was checked by co-teachers from the public school as well as the research adviser. Few alterations and clarifications of the statements were made to ensure its accuracy and reliability of the summary of the interview to help justify the result from the data analysis.

II. REVIEW OF RELATED LITERATURE

In this section are the underpinnings of this study. There were variety of sources that were used to justify the study and serve as the guiding star of the process. Moreover, this review is presented into two sections: Functions as a prerequisite to basic calculus and Mathematical skills as a way to determine the difficulties of students prior to functions.

FUNCTIONS AS PREREQUISITE TO BASIC CALCULUS

For the past 25 years, Mathematics education researchers were eager to study the underlying reason for poor learning of Calculus and have successfully found out that the students' difficulties in understanding key ideas of calculus were mainly rooted in their weak understanding of the function as the key concept in learning the Calculus subject as a whole (Breidenbach, Dubinsky, & Nichol, 1992). These weaknesses in students' understanding of the concept of the function contribute to students being unprepared to understand ideas in beginning calculus (Marilyn, Carlson, Bernard , & West, 2015).

As revealed from the study about students' level of understanding of function, the researcher found out that when function names such as **f**, **g**, and **h** were used as the substitute of the common naming of the function, the students tend to unclearly see as to what letters are really meant to and some students would tend to believe that these are just letters that were represented as a variable. This is already expected to students, as the students acquired this concept in algebra as letters have been used to define as variables. This conception does not support students in seeing functions that have been represented with the letter and are clearly defined with a formula as a representation of the process that maps input values in a function's domain to output values in a function's range (Carlson & Rasmussen, 2008).

MATHEMATICAL SKILLS

Lacking mathematical skills could cause difficulties in solving a problem. Thus, these skills are essential to apply and for mathematical concepts, problem-solving, and good sound decision making.

According to Garderen (2006), deficiency in acquiring one's skills might cause in difficulty differentiating, relating, and organizing ideas or information meaningfully.

Furthermore, the lack of mathematical skills varied (Hill 2008;Kaufman 2008; Berch & Mazzocco 2007; Garderen 2006; Osmon et al. 2006; Garnett 1998; Nathan et al. 2002).

This study modified the five types of mathematical skills from the study of (Tambychika & Meerahb, 2010). Thus, the researcher excluded the last skills as it is not imperative to the study. The decision of modifying the skills was thoroughly decided and planned out by the researcher and public school teachers together with the research adviser.

These were the skills intended for the data analysis:

1. Number fact skill-*proficiency of number facts, tables, operations and mathematics principlel.*

2. Arithmetic skill- *accuracy and logarithm in computational and mathematical working-procedure*

3. Information skill- *it is an expertise to connect information to learnt concepts, operation, and the experiences as well as the expertise to transfer information into action and transform problems into mathematical sentences.*

4. Language skill- *proficiency of the mathematical terms and relevance of mathematical information.*

III. RESEARCH METHODOLOGY

This chapter showed the research design, the research respondents, research locale research instruments, and data gathering procedure.

Research Design

The design of this study used mixed Qualitative and Quantitative research to have a clearer understanding of the difficulties met by the STEM students in the Division of Biliran. Quantitative research focuses more on quantifiable data including the number of respondents, the number of students enrolled in an identified school, percentage, and frequencies. Qualitative research on the other hand, brings the researcher closer to the data.

Research Locale and Respondents

The researcher studied 58 Grade 11- Science Technology and Engineering Mathematics (STEM) students batch 2019. These students just recently finished their General Mathematics and Pre-Calculus, thus, they were most suitable for this study to determine the least learned skills prior to functions as it is a prerequisite topics for Basic Calculus for their next semester. The discovery of the least-learned skills from the students would guide the researcher to determine the difficulties met by the students as the least learned skills are interwoven by the difficulties met by the students.

The researcher employed random sampling to each of the identified schools to determine the possible respondents of this research as random sampling is the unbiased selection of the population.

The said number of respondents was identified from one of the schools in the Division of Biliran namely: Biliran National High School, Caibiran National High School, Naval School of Fisheries, and Tucdao National High School. The selection of the schools was thoroughly decided and identified by the researcher together with the 25 teachers at the Public School who were enrolled at Master of Art in Education- Mathematics (MAEd-Math) and the research adviser *(who was our subject teacher in Calculus).*

Research Instruments

To answer the general purpose of this study, the researcher utilized a researcher-made test questionnaire to identify the students' difficulties in solving problems about Functions as it is the starting point to clearly learn the Basic Calculus as one of the specialized subjects in Senior High School students who took STEM as their strand. The said questionnaire underwent a thorough decision making coming from the Master of Art in Education- Mathematics (MAEd-Math) students together with the subject teacher. After choosing and finalizing the questions to be used for the study, it underwent pilot testing to determine the difficulty and the number of hours it took to finish the test.

The researchers studied and analysed carefully the solutions and the final answers of the students who underwent pilot testing. There were few corrections that were made from the test questionnaire before it was finally released to the 58 respondents of the study.

To check the answer of the students the researcher utilized the below analytical scale for problem-solving from (Nicol, 1992):

ANALYTICAL SCALE FOR PROBLEM SOLVING

Understanding the problem

0- No attempt
1- Completely misinterprets the problem
2- Misinterprets major part of the problem
3- Misinterprets minor part of the problem
4- Complete understanding of the problem

Solving the problem

0- No Attempt
1- Totally inappropriate plan
2- Partially correct procedure but with major fault.
3- Substantially correct procedure with minor omission.
4- A plan that could lead to a correct solution with no arithmetic error.

Answering the problem

0- No answer or wrong answer based upon an inappropriate plan.
1- Copying error; computational error; partial answer for problem with multiple answers; no answer statement; answer labelled incorrectly.
2- Correct solution.

Data Gathering Procedures

The researchers sent a letter of permission to the school principal allowing the researchers to conduct the study. The test took two days before it was finally checked and studied for research purposes. The students were only given one hour for each test as the test was split into halves; the first test was purely mathematical equations and the second test was all about problem solving about functions. After the test, the researchers started to analyze the solutions and the answers of the students.

During the second day of the conduct of the test, the respondents were given a clean bond paper to write their experiences in answering the test. The answers of the students were transcribed through content analysis to be able to qualitatively understand the difficulties met by the students.

To be able to achieve the validation of the qualitative result the researcher employed one of the elaborated six techniques to ensure trustworthiness—Peer debriefing. Using this technique, it helped ensure its accuracy and reliability of the summary of the interview to justify the result from the data analysis.

IV. PRESENTATION, ANALYSIS, INTERPRETATION OF DATA

This section presents, analyze and interprets the data gathered from the research instrument. The students' answers were analysed thoroughly by the researcher with the help of the other public school teachers together with the research adviser by identifying the least-learned skills; where each skill corresponds with specific skills that students tend to commit a mistake. Students' interviews were qualitatively analyzed through Content analysis and has been validated through peer debriefing technique to further understand the matter.

Table 1: Demographic Profile of the students

IDENTIFIED SCHOOLS	MALE	%	FEMALE	%	TOTAL
Biliran Science High School	5	36	16	36	21
Caibiran National High School	2	14	13	30	15
Naval School of Fisheries	4	29	11	25	15
Tucdao National High School	3	21	4	9	7
TOTAL	**14**	**100**	**44**	**100**	**58**

As gleaned in table 1, there were 58 students who took part of this study and the said students came from the four identified schools in the Division of Biliran that offered a Science, Technology, Engineering, and Mathematics (STEM) as a strand. The above mentioned students were all Grade-11 in the school year 2019-2020.

Upon comparing the number of participants who took part of this study, Biliran Science High School had the greatest number of participants both in male and female with five or 36% of the total population of the male and 16 or 36% total population of the female respectively.

Below were the tables of each of the students' mathematical skills. Each table was clearly and elaborately discussed. After the researcher identified the most committed errors of each sub-skills, it was deliberated, critiqued, checked and finalized by experts, public school teachers together with the research adviser before it was presented in tables. Thus, the reliability and credibility of the data below were upheld.

Table 2: Respondent's Number fact skill

MAJOR SKILLS	SUB-SKILLS	FREQUENCY	PERCENT
Number fact skill			
	Concept	8	13.8%
	Basic Operational	4	6.9%
	Basic mental add/ subtract	2	3.4%

From the table above, learning concept was the critical point of the number fact skill as compared from the three sub-skills. Clearly it obtained 13.8% of the population, it may not seem to be crucial yet the problem of learning the concept prior to number fact skill must be address to the students as it is also vital for effective learning.

Table 3: Respondent's Arithmetic skill

MAJOR SKILLS	SUB-SKILLS	FREQUENCY	PERCENT
Arithmetic skill			
	Working Procedure	25	43.1%
	Accuracy	9	15. 5%
	Algorithm	23	39.6%
	Procedural knowledge	30	51.7%

Upon comparing the sub-skills of Arithmetic skill to the number skill above, most of the sub-skills from Arithmetic has the most numbered committed errors, thus, it influenced the difficulty of learning functions as it is prerequisite to learning calculus.

From above four sub-skills of Arithmetic skill, Procedural knowledge step into more than half of the population of the respondents with 51.7%. Thus, considered as the most critical point in this area. In this sub-skill, the students should be able to successfully think of a way in solving such problem. In other words, the student must have an end in mind in what to do in a specific problem.

Almost "working procedure" step into half of the population as it earned 43. 1%, thus comes after the Procedural knowledge. In this sub-skill, procedural knowledge and working procedure intertwined with each other as the students after having an end in mind must have solved the problem and therefore, working procedure is imperative as well.

In this area, teachers who have read this study should also focus the students to master the Procedural knowledge and the working procedure of the students as it also upholds the importance of solving a problem.

Table 4: Respondent's Information skill

MAJOR SKILLS	SUB-SKILLS	FREQUENCY	PERCENT
Information skill			
	Making Connection	5	8.9%
	Manipulating Information	20	34. 4%
	Mathematics Sentence	10	17. 2%
	Determining Formula	20	34. 4%

As revealed from table 4, Manipulating information and determining formula were the most critical point in the respondent's information skill as both identified sub-skills earned 34. 4%. Clearly, the said critical sub-skills were the preliminary things students must undergo beforehand.

The Manipulation of information is an important activity that the students should do first because in this sub-skill, the students must have identified the important information to answer the problem such as what is asked in the problem, what is the given and any other little information to contribute for the solution of the problem.

Determining the formula on the other hand comes next after manipulating the information, because this is one of the essential activities that students should ponder on as this predetermined formula would give you the gist into what certain thing the students have to work on.

The said critical points must also take into consideration as these things are imperative for a successful solution of the problem.

Table 5: Respondent's Language skill

MAJOR SKILLS	SUB-SKILLS	FREQUENCY	PERCENT
Language skill			
	Terms	5	8.9%
	Language Understanding	7	12. 0%
	Number Value	13	22. 4%
	Understand the Objective	37	63. 8%

For the language skill, understanding the objective has been the critical point of this skill as it obtained 63.8% and followed by Number value that obtained 22.4%. A wide range of dispersion of the data could be perceived from the table 5, as understanding objective is 41.4 % differed from the number value. According to (Tambychika & Meerahb, 2010), the poor understanding of mathematical language could be greatly affected by poor understanding of the objective.

This only implies that from the sub-skills of the language skill, understanding the objective beforehand should be instilled towards the learners because it helps the students to be guided into what they are solving for and for what is the solutions or formulas are up to. As added by (Geary, 2004), language skill had also helped the students to demystify and manipulate information for the learner's memory.

Table 6: Summary of the Students' Least Learned Mathematical Skills

Major Skills	Sub- Skills	Frequency (f)	Percent (%)
Number fact Skill	Concept	8	13.8%
	Basic Operational	4	6.9%
	Basic mental add/ subtract	2	3.4%
Arithmetic Skill	Working Procedure	25	43.1%
	Accuracy	9	15.5%
	Algorithm	23	39.6%
	Procedural knowledge	30	51.7%
Information Skill	Making Connection	5	8.9%
	Manipulating Information	20	34.4%
	Mathematic Sentence	10	17.2%
	Determining of Formula	20	34.4%
Language Skill	Terms	5	8.9%
	Language Understanding	7	12.0%
	Number Value	13	22.4%
	Understand the Objective	37	63.8%

After a thorough analysis of the students' response, table 6 is presented as the summary of the students' least learned mathematical skills as these major skills would influence students' difficulty towards the Functions as a prerequisite to Basic Calculus.

Among the major skills identified, one of the sub-skills from Language skill—*understand the objective*— obtain the highest percent of committed error with 63.8%. In addition, one of the sub-skills from arithmetic skill obtained the second highest percent of committed error with 51.7%. Among all the sub-skills, the two said skills were the only skills that get more than half of the population.

It is interesting to see the data, that there were few students who got mistakes with respect to number-fact skill. However, it is alarming to check the data as well that there were also students in the Division of Biliran that were lacking of information skill which also upholds relevance in dealing a specific Mathematics problem. Thus, poor understanding of the concept and poor strategic knowledge will result to difficulty in dealing problems (Heong, 2005) where understanding the concept is part of information skill.

All of the skills identified had their interconnectedness with each other thus supports the claim of (Tambychika & Meerahb, 2010) on his study stating that there might be an interaction of all these skills. It only implies that, as teachers we must develop these skills to our students as these are important to the holistic learning of any problem-solving.

Students' summary of their experiences about their difficulties met in answering the researcher-made test.

These were some of the striking answers of the students after being asked about their experiences.

BSHS 4*: "I tend to forget the way how it was solve because I was bombarded from the information I have learned and sometimes I misunderstood each idea such as transposing, dividing both sides of the equation of a number.. That's why I find it difficult to solve the problem.*

CNHS 10: *"To be honest, I already forgot the concepts on how to solve a problem… it's okay I will just learn it again if the time will come..."*

NSF 9: *"At some point of the problem, I could barely remember this topic however, I have forgotten some predetermined formulas"*

TNHS1: *"I have forgotten the concept of each problem… that's why I did a wise guessing to some problem"*

To sum up the above answers, the common students' response was that they tend to forget the concepts about the topic. Especially on how things will be operated such as the linear function, logarithmic function and other related functions. In addition, students tend to find it difficult to answer the problem related to function because of the fact that they have forgotten the predetermine formulas, thus resulted to guessing.

It is interesting to observe the response of CNHS 10 stating that he will just learn it again if time will come. It only implies that this student views the subject in a surface approach manner. In other words, he views a specific subject as shallow. A student who sees the subject in surface manner tend to use rote learning, because the student might not find the subject relevant to everyday lives, thus resulted to forgetfulness.

Furthermore, most of the students tend to forget the topic due to the fact that they were already bombarded from a lot of information they have learned from that semester. This shows another evidence why students tend to forget the topic in Math prior to what the study pertains to because of the full information they have learnt.

BSHS 4*: "While solving the problem sometimes I tend to misunderstood what the problem is trying to ask…"*

CNHS 10: *"With regards with what the problem is asking for there is no doubt that I could comprehend that much, however, I tend to get a mistakes as I go along with my solutions, because sometimes it confuses me how to manipulate the formula or the equation"*

NSF 9: *"I do not know how to solve a specific problem, that's why no doubt I absolutely got a big wrong mark"*

TNHS1: *"I do not know what the problem is all about and what the problem is trying to apprehend"*

Collectively, students experienced a difficulty of understanding the objective of the problem as BSHS4 and TNHS1 added during their interview where they said that they tend to misunderstood the problem, thus supports the result of the data analysis above where the result reveals the lack of language skill as considered as one of the critical point.

Additionally, CNHS 10 and NSF 9 support the result of lacking of Arithmetic skill as it comes next after the language skill. The answer the students emphasizes is the difficulty of solving a problem or an equation after the translation of the statement into symbol which is related to procedural knowledge and therefore teachers, administration and curriculum developer must take into consideration.

V. SUMMARY OF THE RESULT & CONCLUSION

After a thorough analysis of this study, the below statements were the summary of the result and conclusion of the mixed quantitative and qualitative method. The said data analysis were check and approved from these following people: the researcher, co-teachers from the public school, and research adviser. Interview results, on the hand, followed peer-debriefing technique to ensure the trustworthiness and validity of the result. Thus, arrived a series of claim below:

1. This implies that the students' difficulty towards learning functions as a prerequisite to the Basic Calculus showed a positive influence to the mathematical skills that students must possess. The continuous rejection of pondering and helping the students to master the skills would result to cumulative poor performance in Basic Calculus as this identified topic is imperative for the next subject in the second semester. The skills mastered in learning functions are necessary for learning Basic Calculus.

2. This study reveals that the Grade-11 students who took Science, Technology, Engineering, and Mathematics (STEM) as a strand in Senior High School had a poor Language skill and Arithmetic skill. In a specific sub-skill in Language skill—*understand the objective*—obtained 63.8% of the population while sub-skill in Arithmetic skill—*Procedural knowledge*— obtained 51.7%, thus consider as the critical point among the identified 4 skills.

3. The result of the data analysis was further supported and strengthened by the result of the interview which underwent content analysis and peer debriefing. The result shows that the students tend to forget the underlying concept of the problem and even predetermined formulas, and as a result, the students couldn't solve the problem. The result also shows an alignment of the result of the data analysis as students had a difficulty of understanding the objective and the difficulty of solving a problem or an equation after the translation of the statement into symbol which is in line with poor language skills and Arithmetic skill respectively.

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