A PHENOMENOLOGICAL STUDY ON THE OUTCOMES OF THE COURSE IN MATHEMATICS IN THE MODERN WORLD

A Dissertation
Presented to
The Faculty of the Graduate School
SAMAR STATE UNIVERSITY
Catbalogan City, Samar

In Partial Fulfilment
of the Requirements for the Degree
Doctor of Philosophy (Ph.D.)
Major in Educational Management

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May 2020

APPROVAL SHEET

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ACKNOWLEDGMENT

This journey would not have been possible without the support of my family, professors and mentors, and friends. To my family, thank you for encouraging me in all of my pursuits and inspiring me to follow my dreams. I am especially grateful to my parent, who supported me emotionally and financially. I always knew that you believed in me and wanted the best for me.

The researcher also wishes to express his profound gratitude and sincere appreciation to the following persons for their exemplary guidance, valuable feedback and content encouragement throughout the duration of this research works.

Dr. Bejamin L. Pecayo, President, Northwest Samar State University, Calbayog City, for supporting the researcher's study.

Dr. Marilyn D. Cardoso, President, Samar State University (SSU) Catbalogan City, for her untiring support and encouragement.

Dr. Esteban A. Malindog, Jr., Dean, Graduate School, SSU, Catbalogan City, for his significant and valuable comments which helped in refining this study.

Dr. Lanie M. Pacadaljen, the researcher's adviser, for sharing her knowledge and expertise and for the untiring support and encouragement which helped the researcher finish his research work.

Dr. Jonas P. Villas, the researcher's dissertation consultant, for his sincere and selfless support, prompt and useful advice during my research. He gives me a lifetime unforgettable memory of his benevolence, intelligence, diligence and erudition.

Ms. Dennise Recuerdo, the researcher's dissertation consultant, for her valuable opinions and comments that helped improve this study and for her consistent support and guidance during the running of this research.

Dr. Nathalie Ann A. Acosta, for her worthy and constructive comments which helped improve the quality of this study.

Mr. Teody Lester V. Panela, for sharing his recommendations in refining this study.

Dr. Fe C. Montecalvo, Dean College of Education NwSSU Calbayog City, for her moral support to the researcher.

Teachers teaching Mathematics in the Modern World and **students** under the course who gave their time in sharing their experiences cooperation and participation to complete this study.

To the researcher's **parent, brothers**, and **friends** for their support and encouragement to successfully finish this study.

Above all, to **Jesus Christ**, for **His** guidance, and for the courage and divine wisdom. He poured to the researcher.

The Researcher

DEDICATION

I dedicate my dissertation work to my family and friends. A special feeling of gratitude to my loving parent, Betty whose words and encouragement and push for tenacity ring in my ears. My brother Joselito, and to my sisters Gina and Rowena, have never left my side and are very special. And lastly, this work is dedicated to the Almighty God, thank you for the guidance, strength power of mind, protection, and skills and for giving us a healthy life.

ABSTRACT

The study aims to delineate the teaching and learning lived experience of a group of the teachers and students pertaining to the course Mathematics in Modern World. It its contemplative as to how learning and teaching was translated in praxis wherein meanings, structure and essence is purposed to be unveiled. The study was a qualitative study following a phenomenological research design aimed to extract the essence of teaching and learning Mathematics in the Modern World. The positive views of students towards the subject provide for a connection to the feeling of belongingness in the class activities. The course was also described to be "easy" since they can relate to the course and has a seeming control of the learning process. This translates to the appreciations of the course, to change in perception-the mitigation of the stigma that is math, and to the attitudinal levels of impact such as efficacy and sense of responsibility. Overall, the study provides that teaching and learning Mathematics in the Modern World is centered on appreciation of math but constricted by the quality of the teacher and the attributes and challenges of the learner. It repels the stigma of the learners' past notion of mathematics, through a teaching approach that is participative and facilitative with real-life applications. The researcher conclude that teaching approaches, largely outcomes-based which are participative and facilitative in nature impact students' motivation, confidence, and level of "independent learning".

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Chapter 1

THE PROBLEM AND ITS SETTING

Introduction

With the K-12 and the new college readiness standard, the Commission of Higher Education was moved to revise the general education curriculum (GEC). The GEC presented significant changes across various subjects including a substantial reduction from the existing 63 units to only 36 GE units. This new general education curriculum is anchored on eight courses, including the course, Mathematics in the Modern World (Valencia, 2015). Mathematics in the Modern World is a course designed for math appreciation. It covers topics in Algebra and its relevance to the day-to-day student encounters. This course is expected to provide students with opportunities on solving problems that allow them to understand and value the applicability of math in various industries, including business, science, arts and architecture, music, games, and other facets of human endeavor (De La Salle University [DLSU], 2015).

The course is expected to enhance the students' knowledge on the language and symbols, nature of mathematics, and different types of reasoning, improve skills on the use of various statistical tools, codes and coding schemes, and Math application on finance, voting, and arts, as well as, inculcate the appreciation of the nature and use of Mathematics to various human endeavors (Commission on

Higher Education [CHED], 2013). Mathematics in the Modern World underscores the germaneness of math in different fields of study.

There are numerous challenges in teaching and learning Math. Some students have a negative attitude towards learning the subject while some teachers are not creative enough to adapt to their students' learning capacities (Ganal & Guiab, 2014). Other studies have pointed out that Math achievement is highly correlated to individual and instructional factors and they greatly impact achievements in fundamental Math, additionally, instructional factor affects students' achievement the most (Andaya, 2014). Given that the new GE course, Mathematics in the Modern World, is expected to engage students in Math through underscoring the practicability of learning the subject and its application in numerous fields, it is essential to deepen our understanding of its impact. Since studies have pointed out that there are instructor-related and student-related factors that affect one's comprehension of the subject, it is also fundamental to include the instructors and the students of the course.

With this, the study engaged the instructors and the students who taught and learned the course Mathematics in the Modern World. Through Phenomenology, it underscored the exploration of both actors (the instructors and the students) as a metaphorical mirror, depicting that the idealized course outcomes that must be reflected through the student's performance to unveil the essence of teaching and learning Mathematics in the Modern World.

The meaning, structure, and essence, or the Phenomenology of teaching and learning Mathematics in the Modern World is a shared construction of teachers and students were at the very least consistent with the required standards of the curriculum and exhibits an outcome relevant to a positive efficacious and affective conception of mathematics. It is also hypothesized that these meanings, structures, and essence in teaching and learning Mathematics in the Modern World connote a symbiotic relationship as a product of an interaction between teachers and students.

Mathematics in Modern World as prescribed under CHED CMO No. 20 s. 2013 pertains with nature of mathematics, the appreciation of its practical, intellectual, and aesthetic dimensions, as well as its application to daily life. As a new course carrying great objectives, the instruction and the learning process of the course are important to enhance its delivery and ensure that the learning outcomes are met. Hence, this study was conducted to understand the two phenomena intermingling phenomena of teaching and learning process to gain insight on the lived experiences of the instructors and students and extract the essence of Mathematics in the Modern World.

Statement of the Problem

The study aims to delineate the teaching and learning lived experience of a group of teachers and students pertaining to the course Mathematics in Modern

World. It its contemplative as to how learning and teaching was translated in praxis wherein meanings, structure and essence is purposed to be unveiled. The turning points as the narrative emerges served as guidance to the researcher in conveying the phenomenon. The key research questions utilized in the study as prescribed for phenomenological studies (Husserl, 2008/1931) it in its qualitative exploration are presented below. It is noted that the first two questions are intake questions to draw the narrative. The subsequent questions, 3 and 4, are analysis questions.

1. What are the lived experiences of the students who underwent the course Mathematics in the Modern World?

2. What are the lived experiences of the instructors teaching the course Mathematics in the Modern World?

3. What are the meanings, structures, and essence of the lived experiences in learning and teaching Mathematics in the Modern World as described by?

    3.1 The learners; and

    3.2 The teachers?

4. How do these lived experiences in teaching and learning Mathematics in the Modern World relate in terms of meanings, structures, and essence?

Theoretical Framework

Constructivism as proposed by Jerome Bruner (1960) posited that teaching is primarily concerned in a procedure of meaning-making and know-how building (Corpuz & Saldanan, 2015) as opposed to passively receiving information. Constructivism also provides that studying is an energetic process in which newbies assemble new ideas or standards primarily based upon their current or past knowledge (Corpuz & Saldanan, 2015). In this lens, the learner selects and transforms information, constructs hypotheses, and makes decisions, relying on their cognition. In this theory, learners are the makers of that means and knowledge.

Constructivism in the teaching process underscores the teacher's belief that students build their understanding of a concept from prior knowledge. This factors in the real-life experience of students about the lesson, their very own conceptualization in which they can connect to the topic at hand. In college instruction, and the context of Mathematics in the Modern World wherein the content pertains to the existence of mathematics around us and its vast applications to the day to day situations, college students' prior conceptualization is not discounted in the teaching process. Much of what they are about to learn springs from their prior information. This theorization is related to the Piagetian notion of assimilation and accommodation.

On the other hand, experiential learning theory advocated by David Kolb (Corpuz & Saldanan, 2015) expressed that learning occurs by making sense of

direct everyday experiences. According to Kolb, concrete experience details information that serves as a basis for reflection. From these reflections, assimilation occurs as information and abstract conceptualizations are formed. These new conceptualizations lead to new theories about the world, which one can actively test or affirmed by later factual information through one's experience or as explicated by others.

These theories, constructivism, and experiential learning with the notion of assimilation and accommodation is seen as a major anchor in understanding the phenomenon of teaching and learning Mathematics in the Modern World in college classrooms. The meaning-making that the students cognitively obtains enabled by their experience about the topic of discussion. From such footing, teacher's spirals instruction affirming and/or correcting students' conceptualization through an active dialog (i.e., Socratic learning) with students or from other students expressed experience. In the same manner, the student's earlier conceptualization is a point of motivation in discovering new ideas emanating from their conception hence, building upon what they have already learned. In this case, teachers translate the content of instruction into a format that is intrinsic to the learner's current kingdom of understanding.

Conceptual Framework

As the meanings, structures, and essence are emergent from the findings of the study, the conceptualization of the study follows a systemic analysis lensed

from the experience of teachers and learners. To convey the process utilized in the study, the researcher adopts the Input, Process, Output Model (APA, 2020) as a process of looking into the information as input examined through a process to generate an output.

In general, teaching and learning Mathematics in the Modern World is the central phenomenon in discourse.

Input. The lived experience of both teachers and students in the teaching and learning Mathematics in the Modern World is the defining characteristic gleaned to sprout the essence of the phenomenon. The intake interviews conducted with teachers and students served as the input of the study.

Process. The information gathered from the interview is processed following qualitative data analysis for phenomenological studies. The theories of constructivism and experiential learning were used to nuance the narrative and situate it first in the teaching process and second in the learning process. Each participant's conceptualization—the meaning, and the structure in teaching and learning Mathematics in the Modern World as it translates into their actions were derived. These were then juxtaposed and assembled in its interactions, to highlight the dynamics of processes between teaching and learning.

Output. There are three major outputs for the study: (1) the essence of teaching Mathematics in the Modern World; (2) the essence of learning Mathematics in the Modern World and (3) the essence of teaching and learning Mathematics in the Modern World.

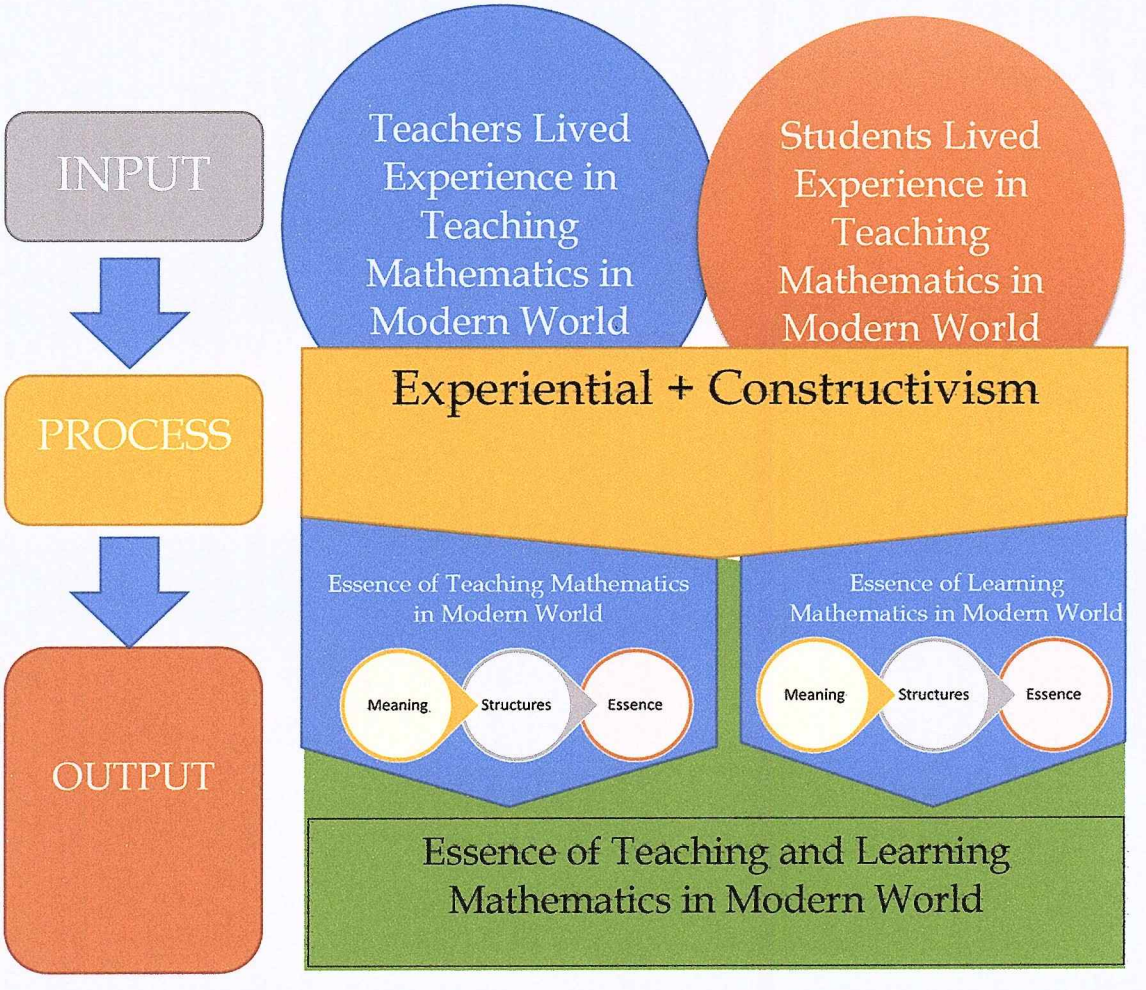

Figure 1. Conceptual Framework of the Study

Significance of the Study

The interest of the researcher on exploring Mathematics in the Modern World lies in his experience as an instructor of this course. The researcher aimed to understand how the subject can be taught effectively, to captivate the students' interests, and ensure that the appreciation purpose is met.

Instructors. As the key implementers of outcomes-based education, the instructors of Mathematics in the Modern World may use the results of this study to reflect on their instruction methods and its possible effect on the students' learnings. The study allows them to also understand insights from the perspective of their fellow instructors and the students who undertook the course.

Universities and colleges. With a state university as the locale, this phenomenological research contributes to the excellence of teaching and learning in the institution by providing a qualitative study that is situated in the nuance and context of the university. The results of this study can provide insights into strategizing instruction methods and learning activities.

School head or administrators. The study may also benefit Administrators so they can effectively mentor and monitor their instructors in conducting the course in a manner that benefits the students and meets the students' outcomes.

Commission on Higher Education. As a new general education course, understanding Mathematics in the Modern World and its effects from a teaching and learning standpoint is essential. Most especially that the purpose of the course is for the appreciation of math. For CHED, the research may impact the instruction

of the course through the insights it would provide on the effects of Mathematics in the Modern World, its instruction, and the students' and instructors' experiences. Furthermore, the study is aligned with the National Higher Education Research Agenda in improving the delivery of a course, as the study adds value to the understanding of teaching and learning a specific General Education Curriculum course.

Future researchers. For future researchers, this contributes to understanding how phenomenology can be applied in the conception of courses on the tertiary level, analyze the context of its application, and using this information to improve it. The study can be a reference for applying a similar methodology in other courses.

The course is designed to showcase math's applicability to the different fields and its impact on everyone's daily lives. Understanding its occurrence as a phenomenon and its effect on both students and instructors can highly contribute to the proper instruction of this new curriculum course. The study participates in promoting understanding of the subject matter by giving relevant qualitative insights to the limited body of knowledge on teaching and learning in the context of the new general education curriculum.

Scope and Delimitation

This study is phenomenological research, involving the instructors and the students of the course Mathematics in the Modern World. The study was

conducted at a state university in Eastern Visayas, with respondents coming from all five colleges of the locale selected.

This research included the travails of those who have undergone or taught this course, specifically the lived experiences in teaching and learning, and a synthesis of the relationship between the two processes as presented by the phenomena. The study was performed in the academic year 2019-2020.

Definition of Terms

The following terms are defined operationally in the study to support the readers' understanding of the study. Terms that are defined conceptually are cited appropriately and are reframed as operationalized in the study.

Mathematics in the Modern World. This is a general education subject prescribed by the Commission on Higher Education. This is also the first math subject that a certain student will take in colleges in the Philippines. The course encompasses mathematics in nature, as language, and as exhibited in various disciplines (CHED, 2013).

Meaning. This term is a jargon used in phenomenological research (Willis, 2007) which supplies the conceptualization of the subjects under study to glean the essence of a certain phenomenon (Giorgi, 1994).

Structures. This term is both a jargon in phenomenological research (Willis, 2007) and sociology (Fraenkel & Wallen, 2009). This refers to the interaction and

positions of individuals in a certain process specifically for this study, the teaching and learning.

Essence. Loosely translated as "spirit" this is the ultimate output in phenomenological research (Giorgi, 1994).

Chapter 2

REVIEW OF RELATED LITERATURE AND STUDIES

The nature of the phenomenological study being emerging from the lived experience of the subjects should not rely on pre-existing conceptualizations. Thus, in this literature review, only the aspects of teaching and learning as a process and the different factors related thereof to recognize the possibilities that may be involved or related to the phenomena under study, Mathematics in the Modern World. To show an in-depth review, this chapter explores the roots of the revisions on the curriculum to cognize its purpose.

This chapter also explores the different studies conducted in learning for tertiary level students. It involves instruction tools, methods, learning environment, and internal factors related to the student and the teacher. Studies concerning teaching and learning math, are expounded. Also, phenomenology as a research design is discussed in terms of its utility in studying the learning and teaching process.

Related Literature

The Philippine education system has experienced significant reforms over these past few years, from school-based management programs and implementing K-12. Through the enactment of the Republic Act 10533, or the Enhanced Basic Education System by Strengthening its Curriculum and Increasing the Number of

Years of Basic Education, it incorporated college readiness standards and the transfer of some GE courses to senior high school (Biglete, 2016). This opened the opportunity to revisit the general education curriculum to retrofit it according to the changes in the education system.

The CHED underscored the essence of this curriculum revision in their Memorandum Order no. 20, series of 2013:

> *"General education lays the groundwork for the development of a professionally competent, humane, and moral person. It also prepares the Filipino for the demands of the 21st-century life and their requisite abilities to anticipate and adapt to swiftly changing situations, to think innovatively, and to create solutions to problems. General education enables the Filipino to find and locate her- or himself in the community and the world, take pride in, and hopefully assert her or his identity, and sense of community and nationhood amid the forces of globalization. As life becomes more complex, the necessity of appreciating the gifts of nature and addressing social problems in the general education program increasingly become more pressing (Commission on Higher Education, 2013, pp. 3-4)."*

The revision of the curriculum was triggered by the necessity to empower the students to meet the demands of the present context, while competently interacting with their fellow learners, the environment, and the world. Based on the curriculum revision, Mathematics in the Modern World is described as a course on "*the nature of Mathematics, appreciation of its practical, intellectual, and aesthetic dimensions, and application of mathematical tools in daily life*" (p. 6). The course commences with the "*introduction on the nature of Mathematics as an exploration of patterns and as an application of deductive and inductive reasoning*" (p. 13). This allows the students to go beyond the usual façade of math, often perceived and regarded

as merely a compilation of formulas. Through this, students can see Mathematics and its aesthetics, through the patterns of nature, and as a powerful language itself, reigned by logic and reasoning (Commission on Higher Education, 2013).

Moreover, the course also covers:

> *"To survey ways in which Mathematics provides a tool for understanding and dealing with various aspects of present-day living such as managing personal finances, making social choices, appreciating geometric designs, understanding codes used in data transmission and security, and dividing limited resources fairly" (Commission on Higher Education, 2013, p. 13).*

This affords the students with opportunities to practice Mathematics in a broad range of exercises, allowing them to experience the subject in a variety of dimensions, and testing their capability and understanding of the subject matter.

In the suggested syllabus for the course Mathematics in the Modern World, the course learning plan and outcomes were outlined to emphasize what students should learn and how these learnings can be assessed (CHED, 2013). The learning outcomes are as follows:

Knowledge. Discuss and argue about the nature of Mathematics, what it is, how it is expressed, represented, and used (p.2); Use different types of reasoning to justify statements and arguments made about Mathematics and mathematical concepts (p.2); Discuss the language and symbols of Mathematics (p.2).

Skills. Use a variety of statistical tools to process and manage numerical data (p.2); Analyze codes and coding schemes used for identification, privacy comma and security purposes (p.2); Use Mathematics in other areas such as

finance, voting, health and medicine, business, environment, arts, and design comma and recreation (p.2).

Values. Appreciate the nature and uses of Mathematics in everyday life (p.2); Affirm honesty and integrity in the application of Mathematics to various human endeavors (p.2).

These learning outcomes are expected to be reflected through the performance of the students in their assessments. Several assessment methods were also suggested by CHED (2013). These included essays and writing exercises, quizzes, problem sets, long tests, and class exhibits.

Learning is one of the most important experiences in life. It can impact the person's growth and development, and this is the basis of outcomes-based education. To contextualize learning for this study, this section explores the notion of learning by Newton and Smith (1996). Learning is organized in four dimensions: (1) Declarative learning is about awareness of all the facts and principles around a certain subject. Students are often gauged based on how they know these by stating their knowledge in speaking or writing. (2) On the other hand, procedural learning represents students' learning by the acquisition of the procedures involved. This is obvious when teachers help their students study creative writing or public speaking. (3) Conversely, conditional learning is the consciousness of when and where to apply the knowledge that a student has acquired. It is perceptive the time and condition where their learnings can be used at its greatest benefit. (4) Finally, reflective learning is where students are transformed into

lifelong learners. In this dimension, a student should be able to cogitate on one's attitude, interests, motivation, and values. Reflective learning is the ultimate vision of outcomes-based education (Newton & Smith, 1996).

Learning is best facilitated when it is ends-directed (p. 21): This is all about the importance of a learner to be focused, know, and act with intention towards achieving personal goals (Newton & Smith, 1996).

Learning is affected by the individual difference in style, developmental level, perceptions, and background experience (p. 22): Students differ in the rate at which they resolve developmental tasks, Strange (1991) highlighted this on his paper. Various points of readiness will affect the learning moment of a student because of the differences.

Learning is influenced by self-concept and sense of personal efficacy (p. 23): According to the authors, the belief of oneself on his own can be a major determinant of whether a person will act successfully. Personal appraisals of how well they will execute actions to execute to deal with situations are made by an individual – this behavior is described by Bandura (1982) as self-efficacy.

Preparation and adjustment of new students: Tinto (1993) suggested that new students should have established contact with their entering class, other students, faculty and staff, and campus resources– effective orientation programs should go beyond the provision of information.

Impact through living and learning environment: To help students increase responsibility for their learning, many programs have been designed through

increasing interaction between faculty out of classrooms and by making social and learning environments positive of academic outcomes (Newton & Smith, 1996).

The importance of the shift to outcomes-based education and the roots of the curriculum revision done by the CHED was explored in the previous paragraphs. Since the overall goal of this education revision is to enhance the learning of the student, how to promote an environment that is conducive for learning was explicated by the pieces of literature cited above. It emphasizes social and environmental factors as key contributors to learning. Moreover, what discourages learning among students was also explored. Discussing these topics provides depth and insight on what may affect students' learning when understanding the topics of the course Mathematics in the Modern World.

Related Studies

In a study conducted by Pachemska et al., (2013), they focused on determining the difference in terms of efficiency when it comes to Math classes with ICT application and those with the classic verbal-textual method and whether this difference is statistically significant. Two classes of seventh-grade students were the subject of the study which was divided into two groups, controlled and experimental group. The hypothesis was the level of achievement in the control and the level of achievement of the experimental group is statistically significant. Results showed that there is a large statistical difference between the achievements of the Math class students with ICT application and the achievements of math class

students without the ICT application and id highly significant *(p=.000)*. This depicts that instruction tools can significantly impact the degree of learning of the students.

Kadarag & Keskin (2017) explained that there is a positive effect on the attitude of the students in math class towards their academic success in math and it shows that flipped teaching promoted positive outlook, attitude, and increased motivation. The flipped classroom is also known as a student-centered approach to learning where the students are more active than the instructor in the classroom activity. In this case, the instructor acts as a facilitator to motivate, guide, and give feedback on students' performance (Bergmann & Sams, 2014).

This shows that the instruction method has an impact on how students appreciate and learn a subject matter. However, it only focuses on one factor that may contribute to learning and appreciation of a subject. It also presents information from the perspective of the student alone. There are other related factors on success in Mathematics, aside from teaching tools and methods.

Kiamenish et al., (2020) conducted a study objected to finding out the predictors of math achievement. From the responses of the 400 ninth-grade students that were subjected to analysis, five variables were investigated through the use of regression analysis and Path Analysis Method: math self-efficacy, math self-concept, perceived usefulness of Mathematics, math anxiety, and gender. However, due to multicollinearity between math anxiety and math self-concept the former was removed from the path model. Results showed that math self-

efficacy is a strong predictor of math achievement compared to math self-concept, perceived usefulness of Mathematics, and gender. Also, the direct effect of math self-concept and perceived usefulness of mathematic on math achievement was not significant. Furthermore, the mediating role of math self-efficacy between gender, math self-concept, perceived usefulness of mathematic and math achievement was confirmed. The regression analysis showed that math self-concept and gender explained significantly 8.6 and 3.8 percent of the variance in the math achievement score, respectively. Meanwhile, the difference between males and females in math self-efficacy, math self-concept, and math achievement was significant *($p < 0.05$)*. However, the difference between perceived usefulness of mathematic for both genders was not statistically significant (Kiamanesh, Elaheh, & Esfahani, 2020).

While the study at hand does not aim to measure the relationship of different variables to math achievement, this study provides insights on the various intrinsic factors concerning performance in Mathematics. As a phenomenological study, this aims to supplement knowledge on the dynamics between learning and teaching a specific Mathematics course, Mathematics in the Modern World, as a new curriculum course.

Theoretically, the negative experience occurs when a student relates the study process and the structural complexity of learning. Such a process is defined in three dimensions i.e., utilizing, internalizing, and achieving (Biggs, 1979). These dimensions have "a cognitive and an affective component" (p. 381). The affective

component details the motivational aspect of the student to learn. The concept of self-awareness helps in mending the impacts of Math anxiety and stigma. A self-aware adult is described to possess an independent self-concept, problem-centered, directing their learning, and internally motivated (Steiner, 2014). The mind therefore already conditioned and assimilated (Corpuz & Saldanan, 2015) the stigma to Math and ones' senses.

Another study on factors affecting students of gaining knowledge is the study of Borgobello, Peralta, and Roselli (2013) the subject of the study were three university teachers that differ in terms of their teaching experience (a professor and two assistants). As cited in other pieces of literature of the same study, experienced teachers are adaptable to different contexts while teachers who are just beginning usually focus or are specific only at class content that is to be evaluated. The study was conducted by giving each teacher the same source text to be taught to ten students per teacher. After this, the students' knowledge was evaluated with a posttest and self-evaluation, among others. Results from the study showed that there are differences between the teacher's roles in teaching concerning their experience. More experienced teachers present lessons with conceptual opening due to their knowledge or mastery of the subject and to their role to the discipline. Therefore, teachers with fewer experiences teach like they follow scripts for education. Regarding the organization of the subject and time, clarity, or conceptual depth, the professor's class was rated the best among the three. In terms of the learning achieved, the class of the upper-level assistant

gained better results on the post-test. According to Borgobello, Peralta, and Roselli (2013), characteristics of a guide carried out by a pair with more experience would assure immediate learning.

Knowledge guaranteed by the most experienced teacher establishes itself more in the long run, becoming even more complex in composition, and later being difficult to evaluate in a post-test – a constraint that an experimental design of type presents where the evaluation involved only immediate and specific learning. The teacher is the captain directing the destination in the metaphor of the learning process as a ship. Meanwhile, the students are passengers. The instructors' experience in teaching has an impact on how the students learn the course. The study mentioned above shows that those with more experience have a mastery of the subject matter. Aside from teaching experience, the method of instruction is expounded in the study below.

Interactive teaching highlights the role of the teachers and their relationship with the students in the instructional process (Xhemajli, 2016). The teacher acts as the "instigator of interaction" (p. 31). Interactive teaching, while seen as a favorable method that promotes learning, it is also challenging on the part of the teachers (Xhemajli, 2016). Interactive and facilitative learning is shown to be effective in various researches. Educational Dividens (2020) presented that when students "apply their knowledge to a real-world problem" (para. 1) and "apply their Math, science, and language arts knowledge while using the technology, teamwork and

workplace skills" (para. 1), they learn the concepts and also earn the skills "that prepare them for life" (para 1).

This notion has also been circulated in various policies of DepEd (DepEd No. 21, 2019), CHED, and even in some philosophical roots of strategies and methods of teaching, specifically in experiential learning, (Corpuz & Saldanan, 2015) and constructivism (Bruner, 1960).

The differences in teaching methods allow students to apply their knowledge to a real-world problem. This is specifically an impact of interactive and facilitative learning, as described by the studies and articles cited above. While most of the previous studies discussed explore factors related to students and instructors separately, succeeding studies explore the dynamics of both students and teachers when it comes to teaching and learning.

Mondal (2020) stated that numerous factors may impact the learning process. Intellectual factor refers to an individual's mental level or intellect, this may affect the student in a way that it could implicate serious difficulty in mastering schoolwork. Emotional and social factors, on the other hand, include instincts, emotions, and other social dynamics such as cooperation and rivalry, which is related to a complex psychology of motivation. A teacher's personality is also a factor and it connotes to the individual character of the teacher that affects the learning environment and the failures and success of a learner. This indicates that the way the teacher deals with the students determine the kind of behavior they manifest in the learning situation.

In the context of the learning process, especially in Mathematics, National Numeracy (2013) showed that negative or bad experiences of students in learning Math lingered to 25.00 percent of the students. This bad experience attributes to Math anxiety and results in avoidance of the subject (Chin, 2012). This is the stigma of Math was shown to contribute to students' poor performance in the Philippines (Jaudinez, 2019). Additionally, when a single student is anxious about Math this creates a negative attitude among other students towards Math as well (Lomsadze, 2017). This conceptualization on how Math stigma hampers students education was supported in an exposition (Lomsadze, 2017) wherein it was emphasized that traditional teaching of Mathematics, which includes procedure memorization leads to the notion that "Mathematics is an arbitrary and a limited realm of study" (para. 4). The disconnected approach in the Math teaching process can contribute to the stigma, if not the root of the stigma. This could be addressed through teaching strategies.

It was established by the previous studies that factors related to students and teachers are connected and that teaching instruction and method can certainly improve and deepen the understanding of the student. Since the goal of the educational reform is to improve students' learning, these studies explored to highlight the importance of studying the phenomena of teaching and learning Mathematics in the Modern World. This study provided empirical evidence on the impact of the course on the students' knowledge and document the current practices of instructors teaching the course. Understanding how the course is

taught and learned is a means to reflect on outcomes-based education as it is applied by the instructors and as the students experience such educational reform. Deepening our knowledge on this phenomenon essentially improves the existing practices to achieve the great task of pushing the students towards reflective learning.

In a study conducted by Leonard (2007), he made use of grounded theory to observe how students in an explicit integrative learning environment make meaning of and understand integrative learning. The researcher then tried to find out whether students experience integrative learning. And if so, how can they say that they experience integrate learning, what experiences do they think that is contributing to their integrative ability, and what were the challenges and successes did the students experienced with integrative learning. It was found that the students comprehensively defined integrative learning. The researcher then developed different forms of integrative that vary by complexity to capture the range of learning described by each student. From there, the developmental theory of integrative learning arose. It showed that the students engaged in the least complex form of integration which is application - done through finding coursework which for them is personally relevant and that they can apply their learnings to their own lives. Furthermore, when multiple perspectives arise during class discussions, integration as a comparison is conceptualize. When conflict arises from different perspectives, there is now integration as understanding context. The author emphasized the importance of context as an important factor

in evaluating the claims and arguments. When conflicts are reconciled, the most complex form of integration is achieved called synthesis (Leonard, 2007). However, in the study, students rarely even reached synthesis - but they agreed that what is ideal. The author also found out that the students' level of cognitive complexity as well as their pattern of subject's course work affected their progress with integrative learning (Leonard, 2007).

The study presents a theory on learning, specifically on students' making meanings in integrative learning. The study relates to this phenomenological inquiry in a way that it attempts to understand the students' learning process and differs in a manner that aims to explore the totality of a phenomenon, and the lived experiences of the students and the teachers and analyzing the possibilities in its interaction.

The studies discussed below show the utility of the methodology in studies related to teaching and learning. Two studies are explored to show how Phenomenology expands our understanding of teaching and learning.

Academic establishments proceed to seek and supply specific educating techniques to cater to the learners' needs, to have interaction in revolutionary ways, and extra so, to enhance students' performance. One popular type of teaching strategy that is widely used nowadays in tutorial settings is the so-called 'flipped teaching' or 'flipped classroom'. Speller (2015) conducted a phenomenographic study that investigated the experiences of flipped learning among six Mathematics teachers from Northwest Ohio and southeast Michigan

whose purpose is to study the experiences of Mathematics teacher's use of flipped learning in the Mathematics classroom. Classroom observations and individual teacher interviews were conducted to gather data for the study. The scope of experience in flipped learning enabled them to compare strategies and approaches and develop a grasp of how the teacher recognizes which approaches appear to work and under which settings. Finally, an examination of the six Mathematics teachers provided a discernment into what compels flipped learning as an effective tool for both the teacher as a means of "experiencing" the phenomenon of flipped learning and for the researcher to "experience" how the teacher experiences the phenomenon. This study provided an extension of perspectives for flipped learning in Mathematics education through the experiences of Mathematics teachers.

The study mentioned above shows the application of phenomenography in teaching Mathematics. However, this study differs in a way that phenomenography focuses more on how certain subjects experience the phenomenon, while phenomenology delves into understanding the overall phenomenon. In this study, by investigating the course Mathematics in the Modern World, from the perspective of both teaching and learning, we are understanding the course in the totality of the phenomenon itself.

In understanding the lived experience of students related to the academic environment, Happel et al., (2014), researched Mental Health Lived Experience Academics in Tertiary Education: The Views of Nurse Academics. While the study

is not related to any mathematics-related course, the study supplies insights on what can be extracted when exploring lived experiences. The objective of the study was to explore the insights of the nurses on the academe regarding service user involvement in nursing education programs (Happell, et al., 2014).

The discussion of the above study reveals the different facets of mental health lived experience at a tertiary level, based on the tacit knowledge of those who have gone through the phenomenon, or lived the experience. On the other hand, this study explores a similar education level group, while using phenomenology to explore the experiences of teachers and students. Based on the implications of the publication explored above, this study may reveal various considerations based on their intrinsic and experience-based narrative of the phenomenon, understanding the things as perceived, to comprehend things as they are. This study presents the relationship of proficiency in teachers as a factor contributing to the knowledge of the students. It shows that the experience of the teacher and the depth of their understanding of the subject matter helps students learn better. In exploring Mathematics in the Modern World, the experience and knowledge in teaching the course may appear as a factor involved in the occurrence of the phenomena.

Most of the Mathematics-related researches focus on the relationships between instruction tools, method, and intrinsic nuances within the students and teachers. There is a limited body of knowledge that explores both the students and the instructors' perspective of a course. Since Mathematics in the Modern World

is a novel course that shifts the perspective of teaching math to a more practical approach, understanding how the course was experienced by both the instructors and the students gives room to reflect on its influence in the students and the instructor. Understanding this phenomenon contributes to both the teaching practices and the learning experience, enhancing how outcomes-based education is applied in our tertiary education system.

Chapter 3

METHODOLOGY

This chapter describes the method employed in the study. Specifically, this chapter discusses the research design, instrumentation, instrument validation, sampling procedure, data collection procedure, and data analysis procedure.

Research Design

The study was a qualitative study following a phenomenological research design aimed to extract the essence of teaching and learning Mathematics in the Modern World This type of design is characterized by its interpretive nature and generally existentialist, thus, people's perspective of a subject of inquiry is being studied (Willis, 2007). This design was appropriate for the study since in the extraction of the *essence* in teaching and learning Mathematics in the Modern World is necessary for the phenomenon to be described accurately by both teachers and students, with no subscription to any existing framework, but rather rooted on the facts presented by the subjects of the study (Giorgi, 1994).

Also, similar to how the theoretical conceptualization was linked to the study, phenomenology underscores how one's cognitions emanate from experience and often stays within experience (Husserl, 2008/1931). Both the conceptual and theoretical framework directs the researcher on the fact that the phenomenological approach is the appropriate design for this research.

Instrumentation

The study is qualitative and phenomenological design can only be captured using a qualitative data collection technique. In this premise, the sole instrument that was utilized in the study was interview (Giorgi, 1994) which was done through one-on-one and not a group. This was to ensure that no responses of a certain subject would influence some else's conceptualization of the phenomenon.

The central mechanism of the study to extract the essence of the phenomenon is to look back into the lived experience of the subjects. Thus, the initial question to induct was the telling of experiences, through "*In as much detail as possible, tell me what it was like for you to teach Mathematics in the Modern world/to learn Mathematics in the Modern World*". The nature of this question being open-ended was to draw a wide range of responses in which one can verbally describe the experience. From this question and the tacit knowledge of the researcher, follow up questions were made to elucidate and even model the experience if necessary.

Validation of Instrument

As mentioned, the instrument was simply composed of one central interview question which sprung follow up questions. The use of leading questions was unacceptable as phenomenology does not subscribe to any existing framework but rather based on facts presented by the subjects (Giorgi, 1994) of the

study. In the validation of the instrument, a pilot interview was conducted to assess the (1) utility of the question to elicit the subject's responses, (2) to tentatively set follow up questions and (3) to assess the responses in terms of its analytical soundness concerning the research questions of the study. These components were judged by three experts in the process similar to content validation (Zamanzadeh, et al., 2015) for qualitative research. The procedures of which are as follows:

First, the researcher conducted the interview. While in the interview process, mental notes which served as the basis of the follow-up questions implemented during the pilot interview was documented in post-interview. The full interview protocol from seeking consent, the conduct of interview, transcription, anonymization was implemented during the pilot stage.

Second, the three panel of experts assessed the interview questions raised, the follow-up questions and responses in terms of utility, appropriateness of follow up questions, such being not a leading question, and relevance of the questions to seek responses with potentials to saturation thus enabling analytical soundness.

Lastly, revisions of the follow-up questions were implemented and were consensually agreed by the three panel of experts with a CVI score of *1.00* (Zamanzadeh, et al., 2015).

Sampling Procedure

The participants for this study are from a pre-defined population of people, hence purposive in nature of sampling selection (Fraenkel & Wallen, 2009). These are the teachers and students who took Mathematics in the Modern World course at a specific state university. Since the phenomenon entails the teaching and learning process, and the number of teachers teaching the course is minimal, all teachers teaching the course participated in the study. On the other hand, the students, typically first-year students age 18 years old and above, who took the Mathematics in the Modern World course from the five different colleges (main strata) of the selected state university, was equally represented in the study.

A total of four students from each college were randomly selected from a roster of students in the following substratum (a) those who failed in the course, (b) students with grade ranging from 3.0 to 2.6, (c) students with grades ranging from 2.5 to 2.0 and (d) those with grades from 1.9 to 1.0. In consonance to *Section 17 "General Data Privacy Principles", Section 18 "Principles of Transparency, Legitimate Purpose, and Proportionality"* and *Section19 "General principles in collection, processing and retention" of the Data Privacy Act of 2012 and after the implementing rules and regulations of RA 10173 issued by the National Privacy Commission,* the procedure for selecting the students are as follows:

(1) A letter of request to the University President asking permission to access students' data with utmost confidentiality for the legitimate purpose of the study with a specified period of use and retention of data will be made;

(2) The population frame comprised of students was provided by the University Registrar, with the approval from the President, through a list with serial numbers as identifiers, not names nor student numbers, with their corresponding grades. This was conducted in-house to ensure no data breach;

(3) The population frame was regrouped by substratum;

(4) A random selection was conducted with four subjects from each college;

(5) The names of corresponding students concerning the randomly selected serial numbers was accessed. It is underscored that only the 20 serial numbers that was submitted to the Registrar will be accessed. These students were then identified, informed officially, and was requested for consent and assent to participate in the study considering that they are already of legal age i.e., 18 years old and above. In case that a certain student was still a minor, their parents were approached for consent.

In general, for this study, a total of 6 teachers and 20 students served as its participants. This number was seen to be substantial in number and logically based on the ecological soundness of the criteria to represent the phenomenon (Fraenkel & Wallen, 2009).

Data Gathering Procedure

The basic unit of data gathered was the naïve description of the Mathematics in the Modern World teaching and learning experiences of teachers

and students, respectively. This description was the first-person account of the experience as it was lived and understood by the participant in their day-to-day common sense of understanding. The data gathering procedure for this study was divided into three parts namely, *preliminaries, actual data collection, post data collection necessities.*

Preliminaries. Before the actual collection of data, the interview guide was validated and subjected for an ethical review by Samar State University which translated to a notice to proceed endorsing the conduct of the said study to the selected state university, through its President, the locale of the study. The interview was then scheduled with the participants with their express consent to take part in the said study.

Actual data collection. In this study, the phenomenon is co-experienced by teachers and students, hence, both their naïve description was accounted for through the interview. To best capture, these nuances, an audio recording of separate person interviews with each of the participants was made with expressed consent. In the conduct of the interview, techniques and strategies, guided by the researchers' mental notes in the progress of the interview, was implemented to generate follow up questions or re-open the narratives, which are underscored not to be a leading question.

Follow up questions were framed in a way that it would not be offensive to the respondents but rather constructive nature. Also, the interview process was structured in such manner that the participants *relived* the experience in their

telling of the narratives and not punitive as to identifying reasons why they fail, for the case of students who failed, after all, the study is not about why they fail, but rather on how the learning and teaching process of Mathematics in the Modern World reshape in any ways the narratives of how math's are learned.

Post data collection necessities. The interviews were transcribed into text for further analysis. It was presented back to the interview for member checking and clarification. All identifying information that would reveal the participants' and other people's identities, places, or things that could make such identities easily known were replaced with pseudonyms or other representations as appropriate, to maintain the privacy of those interested parties, and in adherence to the Data Privacy Act of 2012. Such replacements to identifiers took place in the transcription process so that only the participants and the researcher was privy to the identities and other private details.

Data Analysis

Analyzing phenomenological research commenced after the interview data have been transcribed in its entirety. The analysis follows a general qualitative data analysis steps (Willis, 2007) with intricacies as illustrated by Husserl (2008/1931), Giorgi (1994), Broome (2011).

The analysis procedure as summarized in Figure 2 shows that the initial step of the analysis was for the researcher to bracket their conceptualization,

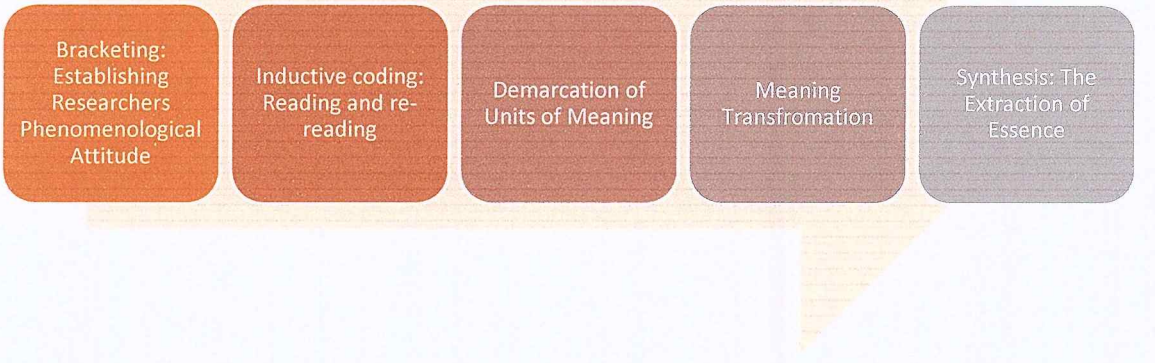

Figure 2. Data Analysis Procedure

presuppositions, theoretical, cultural, experiential, and everyday knowledge to look at the data with a fresher eye (Broome, 2011). The researcher sets his phenomenological attitude, which is primarily to look at the data as it presents itself contextually without "doubt or belief" (p.12). This was necessary so that the researcher will stay true to the phenomenological slogan "back to the things themselves" by Hursserl (2001/1901) as cited by (Broome, 2011).

The second step was to read and re-read the transcript and generate coding done inductively. The nature of inductive coding is anchored on theory building usually applied to grounded theory (Strauss & Corbin, 1990).

The third step was to identify demarcation points to apportion the structures that occur in the meaning theorized from the lived experience of the subjects. This identifies *landmarks* (Giorgi, 1994) and essentially leads to observable indicators that will usher the next phase of the analysis.

The fourth step was meaning transformation. This part of the analysis was informed by the previous step in which the combination of the landmarks or demarcations was bridged to a transcendental level of descriptive expressions of definitions of a phenomenon (Broome, 2011). In this study, the theoretical framework i.e., constructivism and experiential learning theories were used as a lens to transcend the data from its raw form as expressed by the subjects of the study. In this phase of the analysis as well, this was where both demarcations, initial codes derived from two groups of subjects, the teachers, and the students, are put into a productive discourse to conceived teaching and learning process.

The final stage, which is the synthesis, is the merging of all meaning transformed to form the constitution (Giorgi, 1994 & Broome, 2011) of the teaching and learning Mathematics in the Modern World. In general, this was where the essence of the phenomenon is unveiled and defined according to the constructs that attribute to such a latent phenomenon.

Chapter 4

PRESENTATION, ANALYSIS AND INTERPRETATION OF DATA

This chapter presents the findings of the study emanating from the narratives which highlight how the preconceived notion of Math is mitigated by experience– a proposition of this study when it was capsulated. However, these are just the tip of the iceberg and such proposition is still to be perused based on the shared meanings, structures, and essence of teachers and students that will emerge from the study. Indeed, much of the narratives are yet to be unveiled reflective of a phenomenological learning and teaching experience of the subjects of the study.

Q1: What are the Lived Experiences of the Students who Underwent the Course Mathematics in the Modern World?

> *In some ways, I think [Math] it is not interesting because it is not the subject that I am into, I am into the subject science. But it is also interesting because I can reflect on myself that if I can do better in this math subject it'll help me more gain knowledge and not only by those things I like. And I think because of this subject it motivates me more to challenge myself into things I've never like before. (CD_A, 53-54)*
>
> *Back then whenever I see numbers on the board, I always closed my door and try to give it a shot and that's probably why the subject didn't also like me back. I thought that [Math] was irrelevant because I am pursuing BSEd-English and believed in the idea that why study that course if it's not even connected to my major. But, studying Mathematics in the Modern World made me think that once we try to love the subject course, it will love us back. (CA_P, 36-38)*

Human beings are made up of experience in which our disposition, mindset, and viewpoints springs. Math was perceived by the students based on their experience before enrolling in the course Mathematics in the Modern World and thereafter. Some of these narratives were shown above.

The lived experience of the students, unbiased and meditative of their nuances, their contexts, challenges, and preferential learning approaches are discussed with the corresponding turning points. These were identified following the interview conducted with 13 randomly selected subjects from the locale. The subjects belong to the four colleges of the university and were representative of the criteria on performance as explicated in the sampling section.

The turning points in the lived-experienced of the students' subjects in learning Mathematics in the Modern World are *The opposing views toward Mathematics in the Modern World; Course content: Students' recollection; Requirements: What it takes to pass; Approaches to teaching: A yes or no from students' perspective; Recommendations to teaching approach; Students shades of learning behavior; Students perceived challenges; and Students realizations and reflections.*

The opposing views toward Mathematics in the Modern World. The positive views of the students towards Mathematics in the Modern Worlds are presented in Figure 3 while the negative views are shown in Figure 4.

The positive views of students towards the subject emphasize (1) general view of the course; (2) attributes of positive views; and (3) personal impact. The

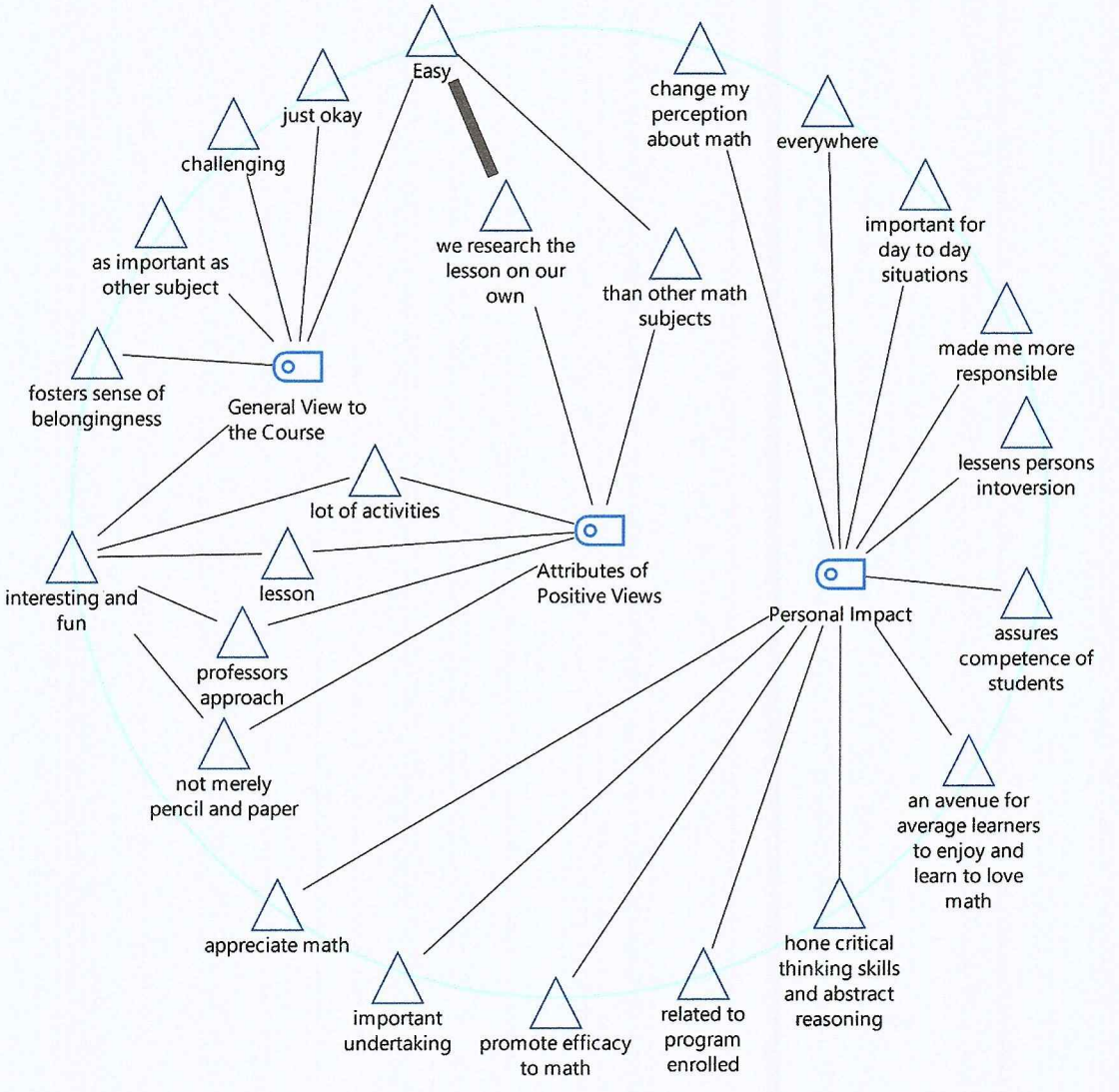

Figure 3. Positive Views of Students towards Mathematics in the Modern World

general views of the students include descriptors such as challenging, easy, interesting, and fun, as important as other subjects, fosters a sense of belongingness, and just okay. Of these views what is interesting is the notion that it fosters a sense of belongingness apart from being easy. The sense of belongingness was explained:

> *So basically, I don't know a lot of people yet in our room, I only knew my friends from the same school. I am a bit hesitant and shy at first maybe because of what we so-called the culture shock but as time went by, my classmates and I learned to adjust and adapt the environment that a classroom should have. Somehow this made me feel belong to the class whenever we had an activity. (CA_B, Pos. 27)*

The narrative provides a direct link to the feeling of belongingness to the activities conducted in the class effecting a positive outlook towards the course. This is consistent with the attributes of positive views as shown in Figure 3 i.e., *lots of activities, lessons, the approach of the professor,* and the course is *not just paper and pencil.* Another noteworthy narration of the subjects is on the attributes they identified relating to why the subject was perceived to be "easy" that is: *"Mathematics in the Modern World is easy because we research the lesson on our own and it's not that hard. That's all"* (CC_P, Pos. 15). When asked to expound, the subject cited:

> *Because you can research about the lesson and it does not focus on problem-solving but you will only research the history of Mathematics in the Modern World and how these lessons originated (CC_P, Pos. 17).*

This exclamation provides evidence that the ease of learning mathematics has something to do with how you can relate to it, or how one can be in control of the learning process i.e., *"you can research about the lesson"*.

Subsequently, the narrations of the students stressing their general view and some attributes to such outlook are seen to contribute to the positively reported impacts that range from appreciation to the course, to change in perception - the mitigation of the sigma that is math, and to the attitudinal levels of impact such as efficacy and sense of responsibility. As one student put it:

> *It made me more responsible. Also, it developed my critical thinking skills because I need to make my design and solve problems (CE_M, Pos. 31).*

Another student added the notion of how math is important *"because it can lessen the person's introversion and when I already build my self-confidence I feel proud for myself (CD_J, Pos. 55)"*. These narratives put in capsule how learning Mathematics in the Modern World shifts the positions of the students from a perspective of un-wanting to a narrative of utility, as emphasized by a student:

> *We cannot deny the fact that we are encountering math and numbers every day. From the time we woke, we look into our watches, we use calculators to compute for our exchange at a store, we count when we do practice in dancing until the time we go to bed, math is all around us. This subject like any other subject provides students like me a space to learn and hone critical thinking skills, abstract reasoning, etc. whether you are good or not in it. (CA_B, Pos. 51).*

The final narrative acknowledges that liking math has nothing to do with whether *"you are good or not in it"* but rather on its utility to human endeavor.

On the other hand, despite the aforementioned positive claims towards the course, some students also identified negative remarks about math and the course in general as shown in Figure 4.

The negative views range from a varied perspective of the lesson being difficult and even to the point of the students just wanting the class to end. Also, the feeling of simply not liking math is echoed by some students as they claim: *"I am having a hard time to understand the lesson it's because I don't like math"* (CA_M, Pos. 16). When asked to expound the student narrated:

> *As a student or should I say most of the students don't like math. As for me, every time that I will be asked or given a problem to solve using such formulas in Mathematics, I can't answer right away, because, I am not into problem-solving (CA_M, Pos. 18).*

The narration also provides a specific instance of un-liking math - *problem-solving*. Another student was also asked in general if there is anything interesting one likes about the course. Bluntly, the study replied: *"There's none and I'm not interested in math* (CB_M2, Pos. 49-50).

Also, Figure 4 shows some psychosomatic episodes that are experienced by the students attributed to not liking math. This includes the feeling of being *"dizzy"*, *"boredom"* which links to be being *"sleepy"*, and the description that math is *"stressful"*. Another interesting narrative was on the experience of *discrimination.* This was elucidated by a student who is eager in studying math so that one will not be discriminated against as: "You are already a college student, but you didn't

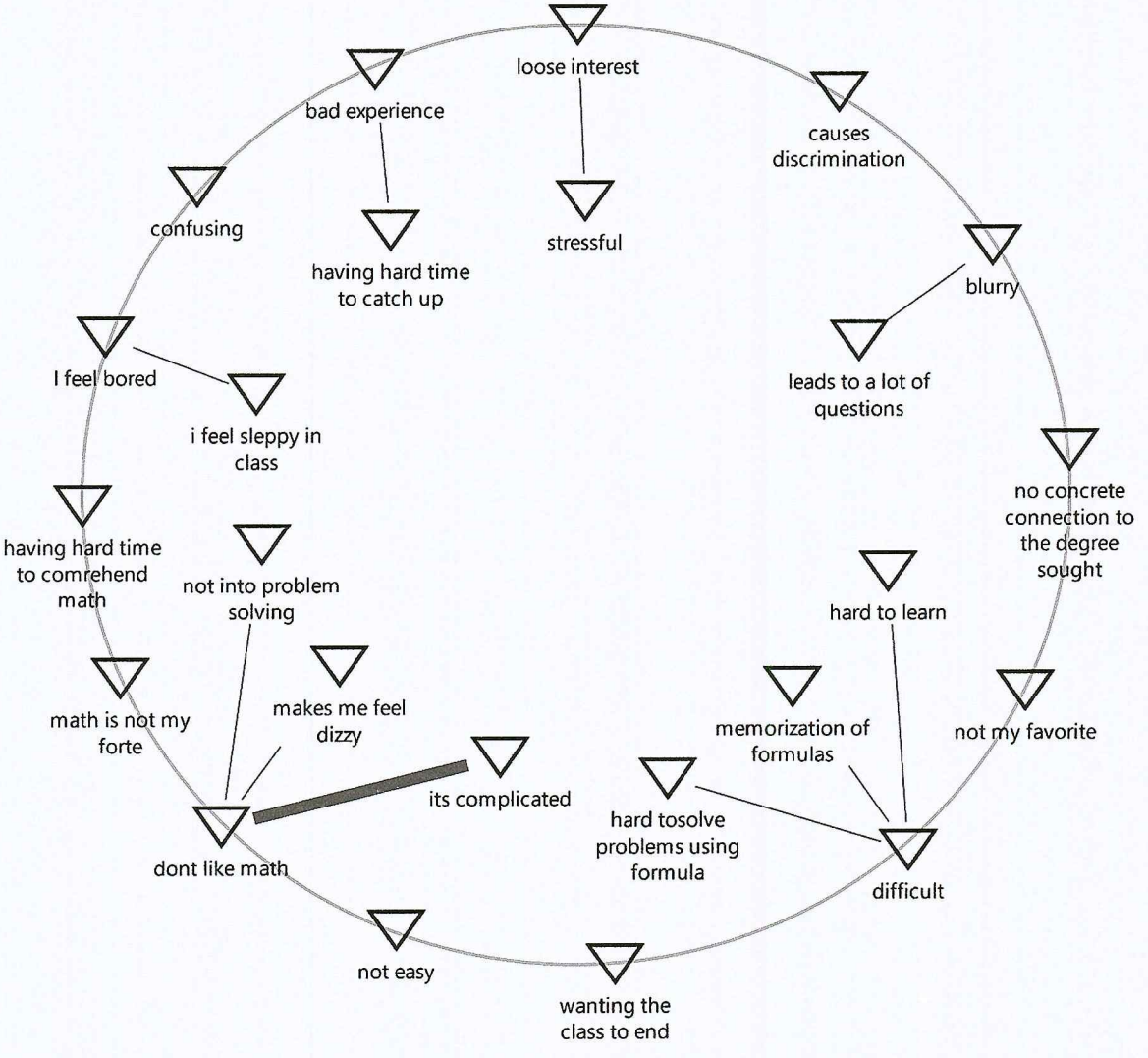

Figure 4. Negative Views of Students towards Mathematics in the Modern World

know how to solve a problem in Mathematics in the modern world subject" (CB_M1, Pos. 31). The impact on the student receiving such discrimination was claimed to be:

> *It's hurt in my side that's why I study Mathematics in the Modern World aside from the fact that it's a recommended subject but for me to be able to learn so that others will not say negative things at me (CB_M1, Pos. 33).*

Although the narration has a silver lining to it, what remains is evidence of discrimination of not learning math which may attribute to the stigma about math.

The aforementioned views towards math are indeed contradictory. However, as posited in this study, the respondents are from the various classification of math performance. Thus, the positive and negative views towards math as presented has to be examined to provide a background of the classifications of students that provides negative views towards Mathematics in the Modern World. This is a necessary *analysis intervention* in the study to aid the researcher in understanding the phenomenon specifically why such a contradiction occurs?

A cross-case analysis on varying students' classification to the negative views to math was mapped out based on intersections as shown in Figure 5.

The figure reveals that no students whose performance is above average identified any negative views towards the course. While average students in the course are split in their views towards Mathematics in the Modern World. Finally,

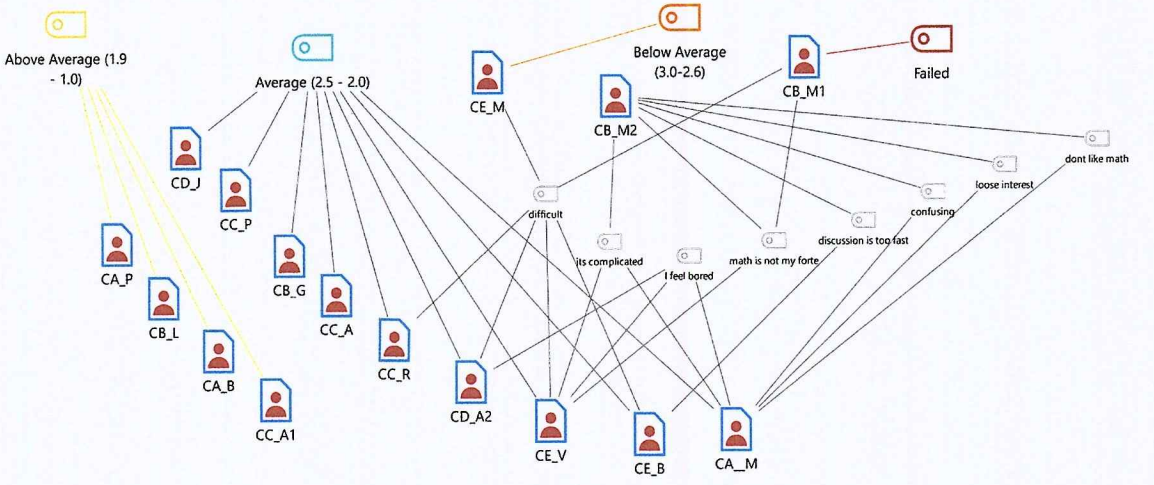

Figure 5. Cross-Case Analysis on Intersection of Codes by Respondents and their Performance in Math

students whose performance in the course is below average or those who failed in the course all provided negative views towards the course.

Course content: Students' recollection. Real-life applications are at the summit of the content of Mathematics in the Modern World. It puts in premise how's in conveying the specific topics of the course which includes number patterns, sequences, nature of mathematics, as language, logic, statistics, and other basic concepts. Interestingly to the narrative is the claim that the course *"does not focus on problem-solving"* whilst on the other hand, someone highlighted that it is about *"solving problems"*.

The nature of solving problems, as shown in Figure 6, was also defined to follow a logical process. Such is defined to trail *precision, orderliness, and consistency of logic.* These are characteristics of how one should investigate problem-solving as the process of precision requires the most often forgotten final step of Polya i.e., the checking. The orderliness on the other hand and consistency to logic provides travails of how the student arrived at an understanding of how to solve the problem. Having such a conception also indicates that a carefully mapped out a plan to address the problem was perhaps developed beforehand. This narrative reveals that such conceptualization is a meaning-making process drawn from their experience – a remake of how one should solve a problem.

Requirements: What it takes to pass? Varied course requirements were reported by the students which range from the traditional to the authentic form of assessment and evaluation.

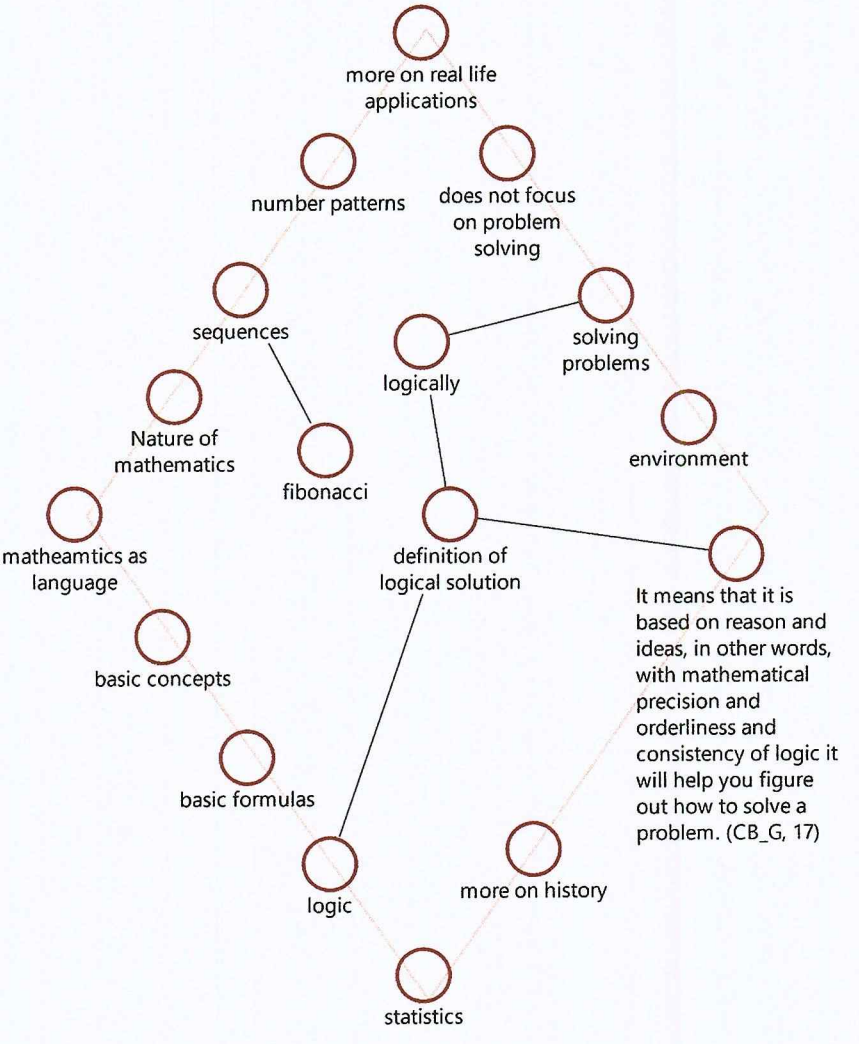

Figure 6. Reported Contents of Mathematics in the Modern World

As shown in Figure 7, the course Mathematics in the Modern World still taps the usual forms of paper and pencil tests like quizzes and major exams. On a certain occasion, the items in a quiz were described as *"not discussed"* or *"not parallel to the given examples"* during the discussion made for such a topic. Such practice was seen to be "confusing" by the students which may contribute to their performance in the course. Also, it was claimed that in a certain class the only requirement was the major exam. Such practice may not critically sample the students' competencies. In the parlance of classical test theory, such may be controlling less for assessment errors under the dictum that more assessments will establish the reliability of the grades afforded to the students.

On the other hand, other forms of students' requirements like *"assignments, take-home activities, reporting, and projects"* may seem to be untraditional and if used with care will convey better understanding to students. However, students' narratives claim that these requirements are sometimes in conflict with the multitude of tasks the students are embarking on in college education. The reason for such a claim was based on an argument that most of the requirements are time-consuming, although it was put to dot that sufficient timeframe for completion is given to students. It also noteworthy to point that reporting as a requirement of the course occurs in the lesson sequence *presentation of the lesson.* Such is discussed further in the approaches to teaching. On the other aspect, projects were narrated by the students to vary from a compilation of quizzes, assignments, and reports to

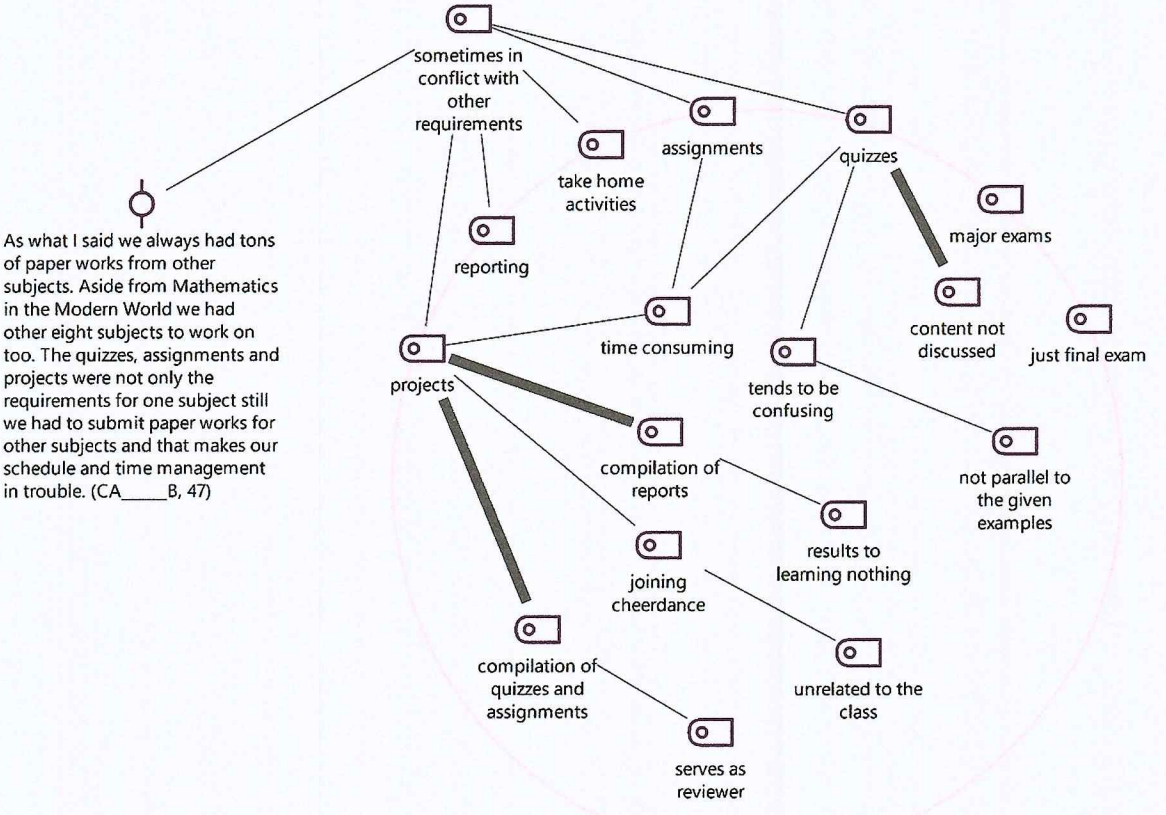

Figure 7. Requirements of the Course as Reported by the Students

even participating in extracurricular activities like cheer dance. The former was shared to have helped the students in doing their reviews while the latter is articulated to be a disconnect to the course, as one puts it in discussion with the researcher:

> ***I:*** *Is cheer dance related to Math?*
> ***R:*** *For me No*
> ***I:*** *How did you say so?*
> ***R:*** *Because it was a dance. Dance and number are completely different.*
> ***I:*** *Did you ask your teacher why he gave that as your project?*
> ***R:*** *Nope, we just go with the flow.*
> ***I:*** *Why?*
> ***R:*** *Because it was easy (CE_B, Pos. 70-77)*

The aforementioned conversation shows that perhaps the teacher was not able to convey the relation of cheer dance to math. Nonetheless, rhythm, music, and even choreography in dance have underlying roots in mathematics.

The requirements of the course are true of a multitude, employing varied techniques that are unusual to the previous practice of teaching math. Yet, this posits promising results only if properly communicated, nuanced, and processed.

Approaches to teaching: A yes or no from the students' perspective. Narratives of approaches to teaching as shown in Figure 8 captures the approaches as perceived by the students.

The figure shows three clusters the approaches are put at the center of the figure while the beans illustrate the nuances on why the approach was effective of not. To facilitate the discussion of these narratives Figure 8 was dissected as shown in Figures 9, 10, and 11.

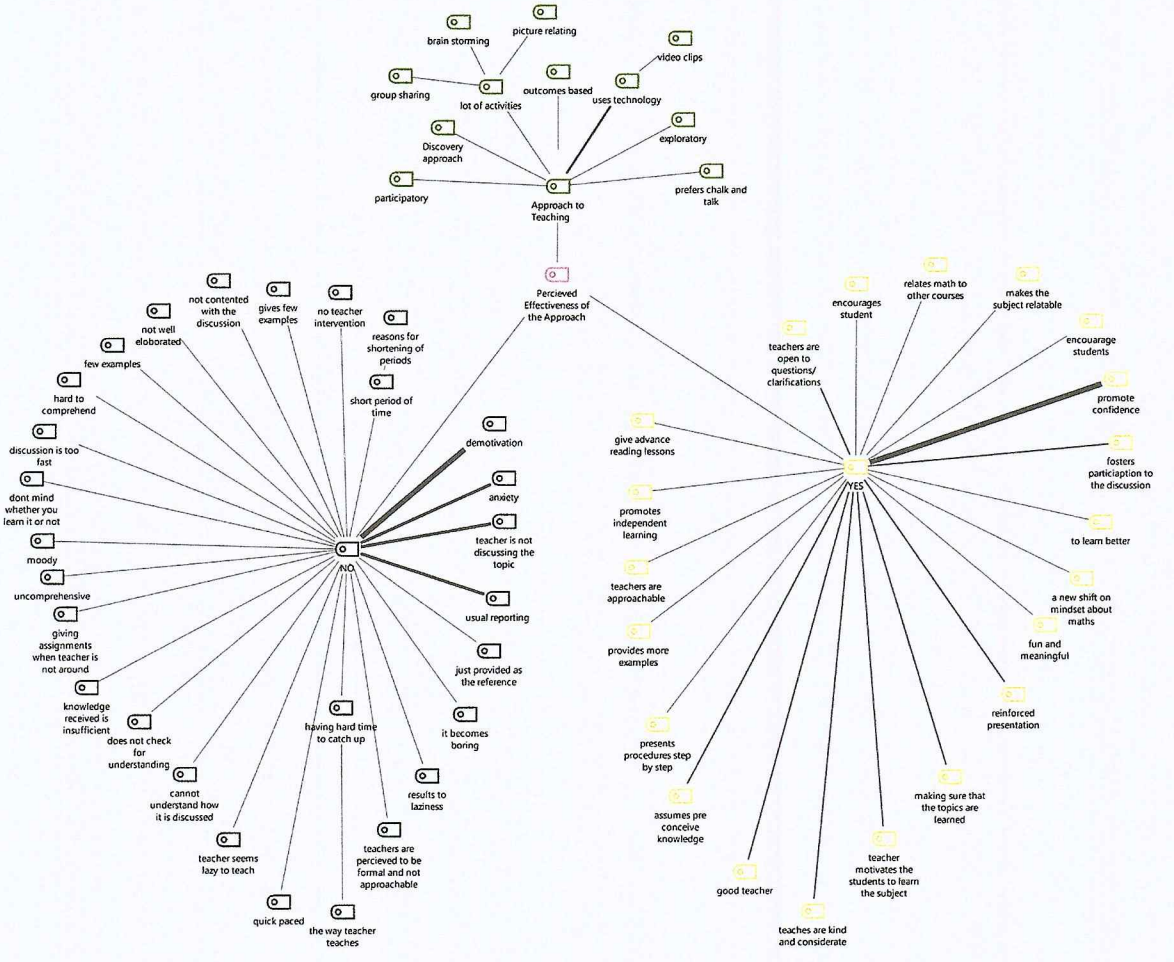

Figure 8. Approaches to Teaching and Students Views its Effectiveness

In Figure 9, the map shows that *outcomes-based* is at the center of the approach. This is perhaps related to the fact that HEI is already streamlining outcomes-based education. The term outcomes based was a direct quote from the students which may imply a familiarity to the said method or it was uttered to them by the teacher beforehand.

The course was also characterized as a *"lot of activities."* The students identified these activities to include *"brainstorming, group sharing"* and *"picture relating."* These activities were also described that it *"give[s] an avenue for other students who are not participative in class to indulge more on the discussion"* (CA_B, Pos. 21). The claim of the students leads the identification of the nature of the approach being *"participatory"*. Another equally important approach identified by the students is *"discovery"* and *"exploratory"*. AS one student cited:

> *We could have a lot of ways for learning to be more fun and meaningful where students are the ones to discover and explore things with the aid of technology as well (CA_B, Pos. 23).*

Students' narratives also explicated the use of technology in teaching. This is elucidated as:

> *We are living in a modern era where technology is readily available and a lot of things are already run by it including the sector of education. Our teacher was able to accommodate and use technology during our classes. With the use of a T.V. monitor and laptop, the discussions run smoothly and productively (CA_B, Pos. 25).*

The use of technology was also identified as a factor that contributes to the effectiveness of teaching which could be further illustrated in Figure 8.

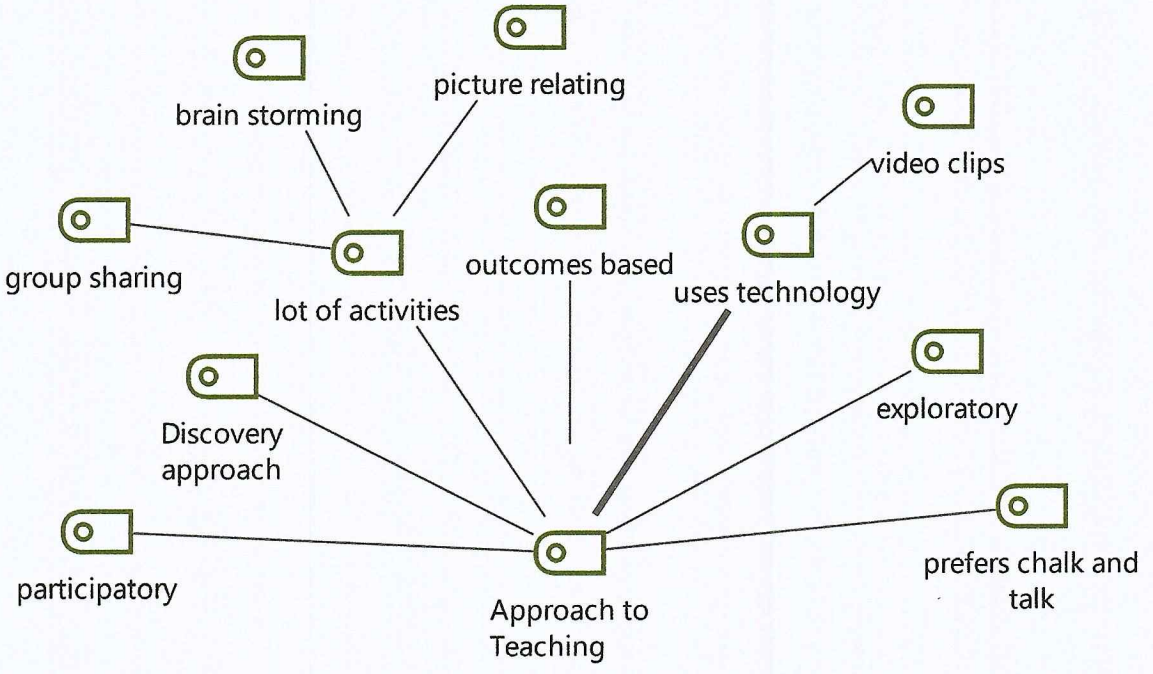

Figure 9. Reported Approaches to Teaching

Figure 10 shown in the succeeding page shows the affirmative judgment of the students to the approach of teaching. The attributes of its effectiveness were emphasized to be rooted in the lesson sequence represented in the base of a triangle. The lesson sequence seemed to be participatory and facilitative to students evident by the following students' constructions: *reinforced discussion, teachers being open to the clarifications, fosters participation in the discussion, gives an advance reading, fun, and meaningful.* The approach to teaching the lesson is also premised to an assumption i.e., *"prior knowledge."* Contrary to the principle of *tabula rasa,* college students were believed to have already some preconceived notions about math, they have their conceptualization and knowledge about math. The bias of the approach to the assumptions seems to convey the stigma about math. In proposition, students are believed to know math and, in a way, have a stigma on math. This is grounded on the narration of the students wherein the approach is directed to changing their *"mindset about math".*

Achieving such a vision was characterized by the students to be ascribed to the teachers' characteristics. The roots of why students consider the approach to be effective were anchored on the teacher to be in general good, kind, considerate, and approachable. From these characteristics, students relate to the teachers and the lesson becomes participatory. The goodness of the teacher is also manifested in ones' action of *"motivating the students." "promoting confidence"* to the level of *"independent learning", "relates math to other subjects"* and *"encourages students"* all geared towards the student learning better.

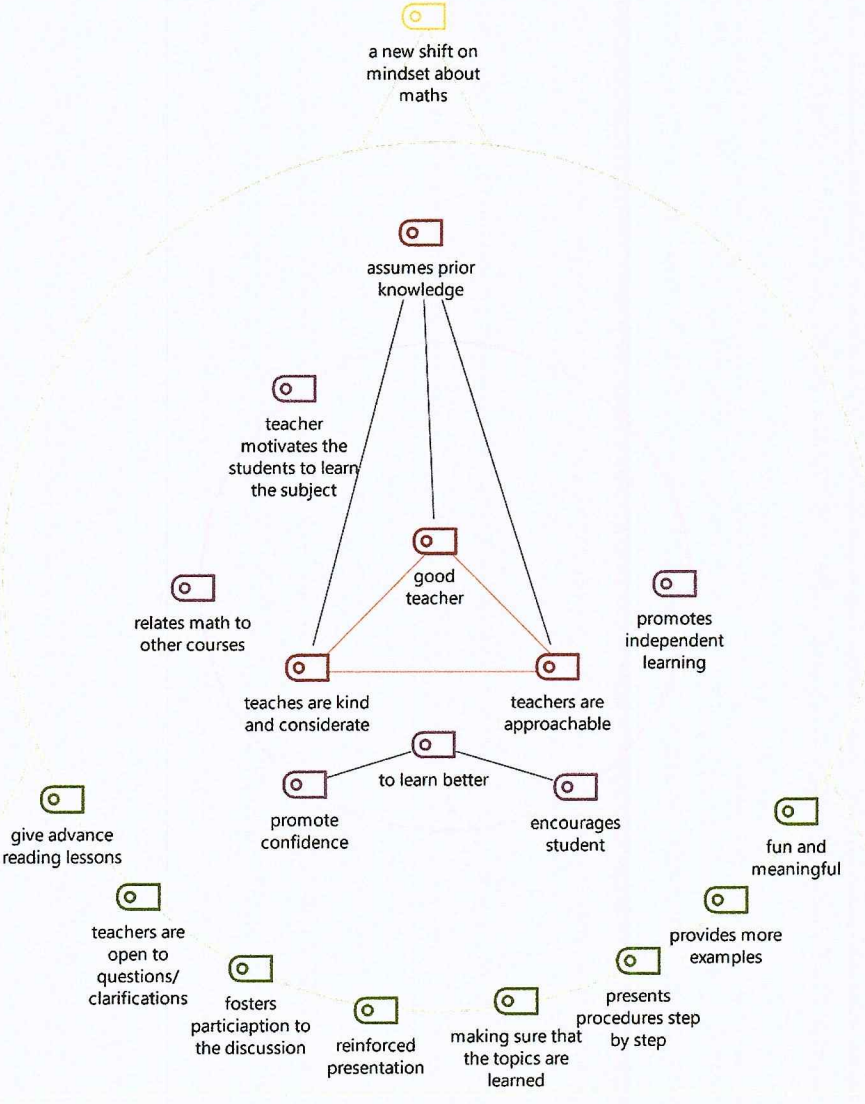

Figure 10. Perceived Roots and Direction of Favorable Teaching Approaches

Else ways, the phenomenon under discourse must be gleaned as well on the narrative of those who are not in agreement with the approach applied. This is necessary to understand and draw the essence of learning (Figure 10) Mathematics in the Modern World.

Figure 10 shows three important clusters of codes based on the narratives. Two concentric circles and their impact on students represented in a triangle at the head of the figure. The core of the circle is some ill-characteristics identified by the student. However, this should be understood in context and it is underlined that these are not intended to suffice a cause and effect relationship. The narrative of the students who identified such behavior is presented as:

> *Our teacher in Mathematics in the Modern World is moody and she always seems lazy to teach. She does [es]n't discuss but rather give us topics to report. No quiz and no evaluation but there is an exam. After the report, our class also ends (CC_A, Pos. 40).*

The narrative is speculative of the teacher being lazy to teach i.e., "seems lazy" and not conclusive of the overall behavior. Another narrative provides that:

> *Our professor tends to explain the lesson too fast and the way he [the professor] explains the lesson doesn't mind [bother to care about] whether you learn or not. That's it. (CB_M2, Pos. 14)*

Such a narrative draws a specific connection to the fast pace of the lesson opined by the student that the teacher simply doesn't mind whether they learn the course or not. Those conceptions were seen to be central to the applied approach construed as underlying facts to the nodes found in the bigger circle (Figure 11).

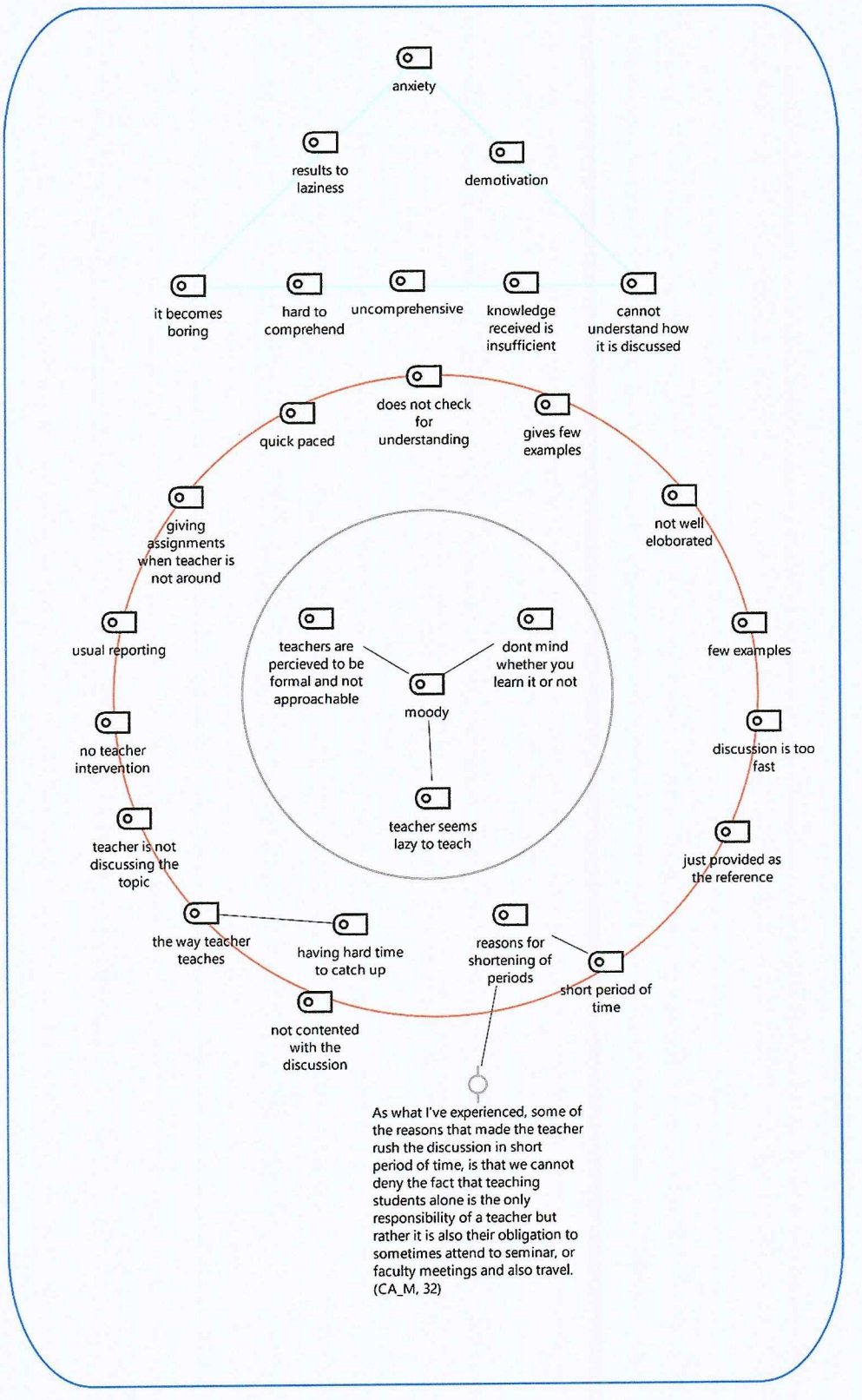

Figure 11. Perceived Roots and Effects Unfavorable Teaching Approaches

These nodes are descriptors on how the lesson was conveyed to the students, Notable among these are *"not well elaborated," "few examples,"* and or simply *"providing the reference."* A certain student when asked about *"Why did you say that such number/equations in Mathematics subject become complicated?"* reasoned as:

> *I think it's because of the way the teacher delivers the lesson. The teacher doesn't elaborate on it much and reads what has been provided on the book or PowerPoint presentation (CA_M, Pos. 22).*

Another student added that *"Math is so difficult for us we cannot easily understand by just giving one example, process, and formula"* (CE_V, Pos. 57).

Also, the instances where "reporting" was used as an approach in teaching was perceived by the students as well to the negative as presented between the conversation of the researcher and the student:

> ***R:** What made it difficult for you to learn?*
> ***I:** Probably because of the ineffective teaching strategy. Ineffective in a way that we had it done through usual reporting. (CC_R, Pos. 22-23)*

Also, the contact time for the course was seen as attribution to claims of student difficulty in learning the course. Such shortened time was expounded to be due to the teacher's participation in activities like meetings, conferences, seminars, and travel. On such occasion, it was claimed that assignments were given to students, such too was seen as a reason for disarray in the process of learning math.

The case in point of the narratives presented above spotlights how the approach to teaching was interpreted to attribute to students' difficulty towards

the course. Such struggle may lead to behaviors that if piled-up will become psychosomatic to the student. As mentioned, they cannot understand how it is discussed, knowledge was insufficient, uncomprehensive/hard to comprehend, → becomes boring. It was also accentuated by the students that the inappropriate approaches result in *"laziness"*, *"demotivation"* and worst *"anxiety"*. This narrative then posits the continuance of the stigma. If this will not be mitigated, the mindset towards Math, in general, will remain to be difficult as one conversation reveals:

> ***R:*** *How can you say that math is indeed difficult for you?*
> ***I:*** *It is difficult for me because it is Math. (CE_V, Pos. 78-79)*

Recommendations to teaching approach. Students who were in a way discontent with the approach applied forward some recommendations as shown in Figure 12.

The students' forward areas for improvement in the teaching approach to include establishing of rapport among students, the inclusion of research or processing mechanism as students' compile reports, to teach the course procedurally, the use of language that is best to convey the lesson, and to consider reciting the math subjects in the morning. These suggestions have to be revisited as the nature of the students who forwards such are most likely those who performed low in the course (Figure 5). Also, some approaches that were deemed appropriate as shown in Figure 10 must be put to considerations as well in the context of improving the teaching and learning process, and in the premise of students' innate characteristics which are discussed consequently in this chapter.

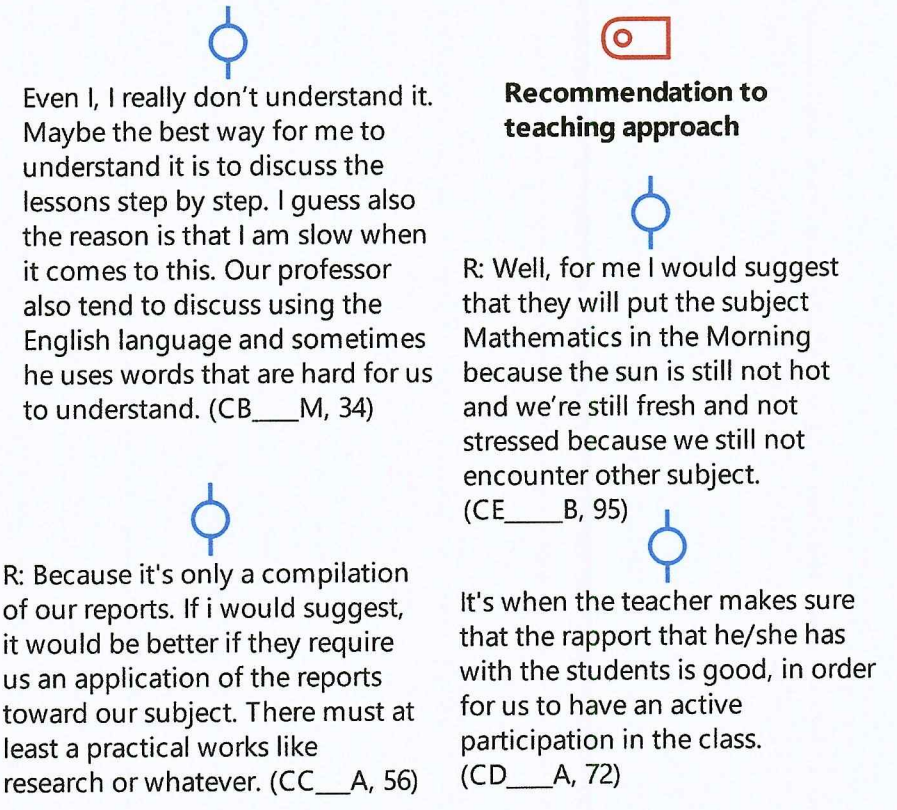

Figure 12. Recommendations of Students to Improve Teaching Approach

Students shades of learning behavior. Positive behaviors are defined operationally for this study as those characteristics that are seen to contribute to students' success in the course. Otherwise, such behavior is defined to be negative. Figure 13 shows these positive and negative behaviors relating to students' learning process.

The figure shows that students were able to convey more of the positive behaviors as opposed to the negative ones. For the negative behavior's "shyness" was reasoned to be the factor why students are ashamed to ask questions in the class. Such behavior is also anchored to the peer pressures or the so-called "*pabibo*" as shown in Figure 14 with specific discussion. Also, student laziness was self-reported which is linked to "inactive" behavior in class, "lack of focus" and even "absenteeism".

The positive behaviors of students to the learning process include "*positive mindset, good time management, reflective of faults, passionate*", conducts "*self-study*" and the "*sense of enjoyment.*" An interesting narrative that also posits students' success in the course is the "*good relationship with classmates*". One student shared how helpful ones' classmates towards the course as:

> *They were a great help to me. They don't intimidate me. I feel comfortable asking help from them because I'm not the only one who asks help but my classmates who are the same as me too (CD_A2, Pos. 64).*

Another:

> *My classmates help me in the sense that when I ask them how to solve the task they explain it to me clearly (CB_M2, Pos. 40).*

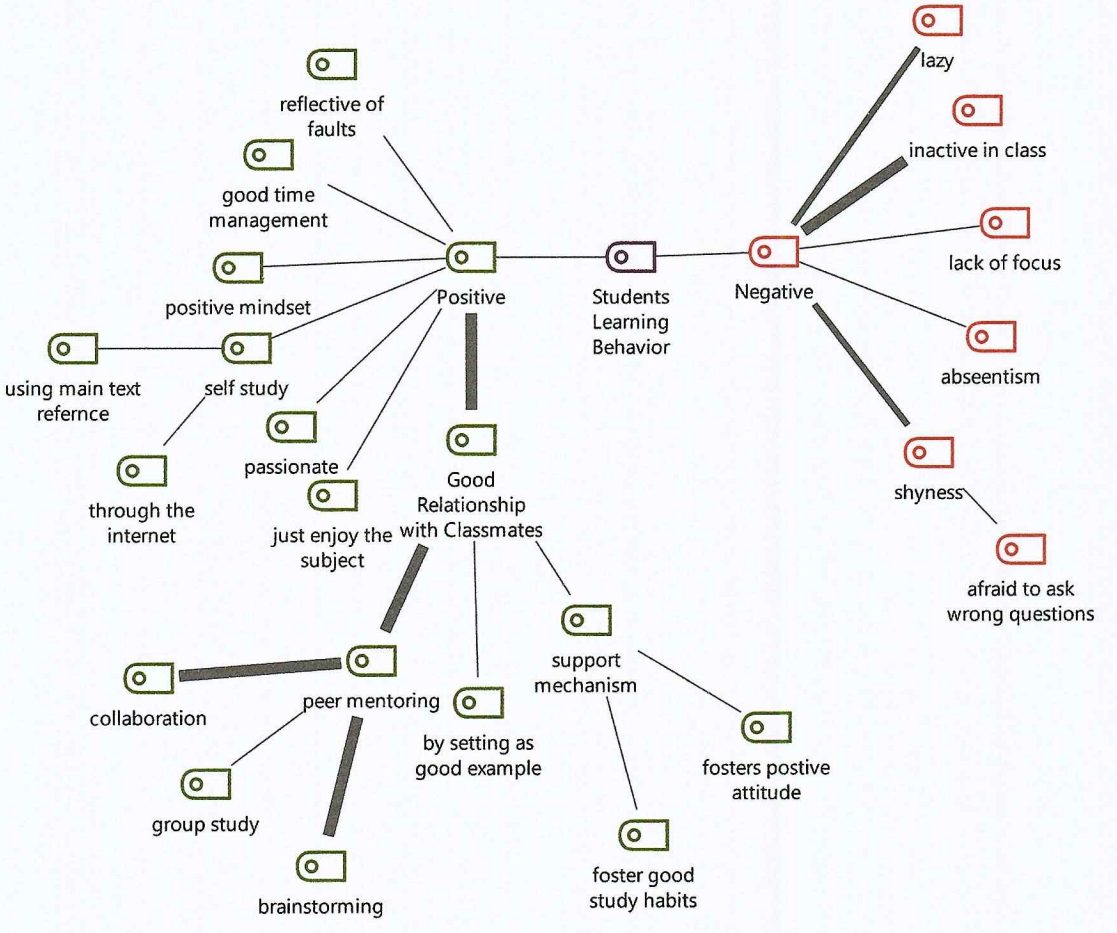

Figure 13. Positive and Negative Behavior of Students towards the Learning Process

Such provides a strong *"support mechanism"* narrated as helpful to the improvement of ones' *"study habits"* through *"peer mentoring"* and *"fosters a positive attitude"* by towards schooling in general by *setting as a good example* to others. The role of peer mentoring exhibits an instance where one was late, here's how the classmates were able to help one out:

> *Well, our schedule on this subject was a bit early at 7:30 in the morning, Monday and Wednesday. I admit that there are times that I was late and whenever I arrived in our class the teacher was already done or halfway done with the discussion. What I need to do is to check from my classmate's lectures and ask them to somehow recall the discussion (CA_B, Pos. 35).*

The narratives express how mutual help among student build their habit towards schooling and even provides a support mechanism to succeed in the course.

However, some challenges dominate the students learning experience as shown in Figure 14. Such challenges were pointed to additionally provide the context of the learners specifically on some factors for achievement that are external to the school.

Students perceived challenges. Figure 14 presents the challenges of the students with the inner circle siting personal level challenges and the outer circle showing school-related challenges with its contexts presented outside the realm of the circle.

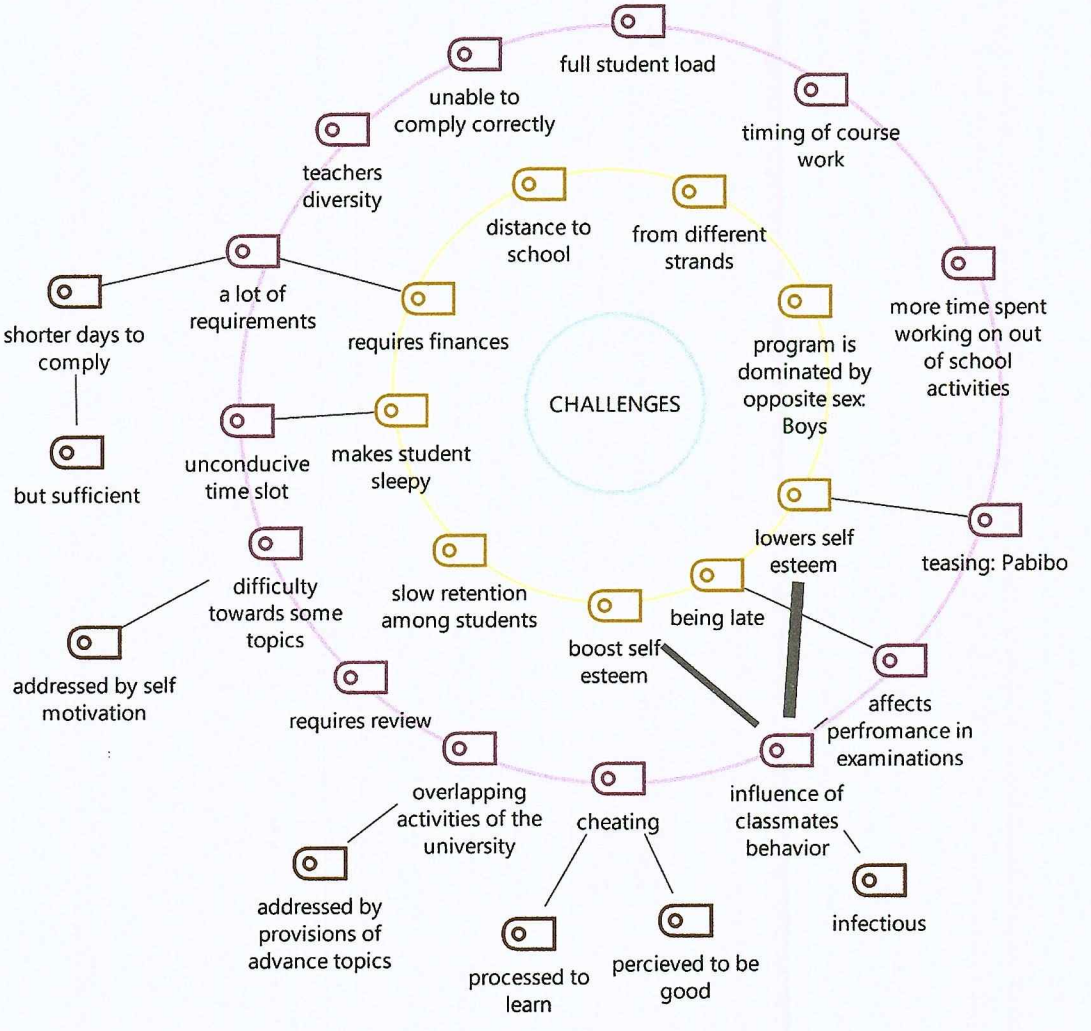

Figure 14. Students Challenges in Learning Mathematics in the Modern World

On personal level challenges, the students report that their strand in senior high school contributes to their difficulty in learning the course and it becomes a challenge for them as explicated:

> *For me, because we are IT students and we are focused on computers. So, if it is about the math subject, we are like confused because way back in senior high school, some of us took different strands, just like me, I took the strand of Humss and we weren't offered with this subject and it took sometimes for us to adjust so in 100%, I think, there is about 70% who are not okay. And that remaining 30% who are okay with math is mostly boys because there are many male (s) in our whole section than females. (CD_A1, Pos. 34).*

The narrative conveys two things, the inappropriateness of the strand enrolled in the school and the experience of a girl enrolled in a course dominated by boys. On other hand, the figure also shows that *distance to the school* becomes a challenge to a certain student:

> *The class starts early as 8:00 am then I traveled from [name of place] so I have to wake up early as 4:00 am and when I arrive in the classroom, I am prone to sleeping especially if the reporters are boring. (CC_P, Pos. 69)*

> *We still have classes from 7:00 pm to 8:00 pm. After the class, I travel back home and arrive at approximately 9:00 in the evening. And I always go to sleep around 11:00 pm to 12:00 am because I have to study for the morning class the next day. And wake up early as 4:00 am to prepare for school and travel as usual. (CC_P, Pos. 87)*

The narration also posits an underlying effect of the said challenge, ending up to be sleepy inside the classroom. On the other hand, despite an interest to learn in Math a certain student reports:

> *I easily forget lessons discussed in the class – like even if the lesson is discussed just today, it will be instantly forgotten the next day. Nevertheless, I still have the interest to learn math. (CD_A2, Pos. 20)*

The aforementioned narrative is worrisome considering the revelation of the extent of forgetfulness and has to be nuanced clinically. Lastly, logistic support for the requirements of the course was shown to be a challenge, as illustrated:

> *Other requirements in the course affect me in paying attention to the discussion. I worried about what things I should do first if it is projects and assignments or where I should get money for my allowance, boarding house, and for the project expenses because not all the time my parents can give and my money is already budgeted. (CE_V, Pos. 21)*

Such narrative bridged what the school has in control with, the requirements, to how it impacts the microsystem of the learner. On the other hand, some challenges that are seen to be within the ambit of the functions of the school include *timing of course work, overlapping activities in the university with more time spent working on out of school activities, unconducive time slot, teachers' diversity, and students' academic load.* Also, difficulty towards some topics was identified and this could have been addressed using interventions or remediation. Additionally, students' behavior in class as it influences negatively other students, becomes a challenge in the learning process. This is claimed to have resulted to *lower self-esteem* especially on occasions when one is teased as "*pabibo.*" In a discussion between the researcher and the student wherein the student was asked:

> ***I:*** *So did you asked your teacher to clarify what he was trying to say or did you raise your hand just to clarify the discussion just for you to get it?*

> ***R:*** *Nope, I just let it go because if I clarify it directly to our teacher, probably my classmates will laugh at me (CE_B, Pos. 44-45)*

The notion of being laugh is resembling a certain peer pressure that occurs inside the learning space. The student also added: *"I'm a shy type person. And I'm afraid that my classmates will make fun of me and call me pabibo"* (CE_M, Pos. 49). Another student has also shared a similar incident:

> *When I attempt to raise a question or recite they will clap their hands as soon as I stand and I didn't even start talking or asking. And also, you have to be sure about what you will say and if not, they will surely laugh at you. (CC_P, Pos. 37)*

Another alarming challenge or perhaps practice is the reported cheating that occurs in the classroom and is deliberately admitted though with a degree of remorse by the students, as:

> *I will just copy answers to my seatmate because I don't have time to review and also another factor that triggers me to cheat is that I don't get the discussion about the lesson because the easy examples of problem-solving that was provided by our teacher to us is different from what is asked to be solved in the quiz and I am having a hard time to solve the problem. That's why I tend to cheat or just copy the answer from my classmate (CA_M, Pos. 54).*

Although such a narrative was in context, it is undeniable that cheating still occurred in the classroom. In another revealing conversation between the researcher and the student it was shared that:

> ***I:*** *Did you cheat during your activities and quizzes?*
> ***R:*** *Honestly yes, we turn our individual quiz to a group quiz.*
> ***I:*** *Is cheating good?*
> ***R:*** *For me yes, sometimes cheating is good in a way that I should know how did I arrive in that answer.*
> ***I:*** *Did you apply those learning in the later part of your life?*
> ***R:*** *Yes, our lesson is not just math my teacher would relate some of the mathematical problems in real-life scenarios. I also learned that*

> *cheating not really good but when I cheat I would try to understand how did I come up with those answers and also collaboration, through this I can share my answer and ideas with my classmates (CD_J, Pos. 42-47).*

The narratives of cheating are in a way counterproductive to the learning of the students and may in eventuality contribute to learners' overall mindset or worldview.

Students' realizations and reflections. To close the narratives of students in the learning process of the course Mathematics in the Modern World, it is best to cap with students' realizations as shown in Figure 15.

> *Success for me is passing the subject, getting enough grades and gaining more knowledge about the subject even though it's hard and something that I don't like in the first place. (CD_A, 58)*

The narrative above shows the conceptualization of a student to *success.* Such shows that "enough grade" and "gaining more knowledge" are the elements of success. Students respondents of the study were asked about their realizations towards the learning experience in Mathematics in the Modern World. Figure 15 shows some segments of these realizations. What is typical in the segments is the acknowledged difficulty of math which can only be overcome by *trying it,* the experience fun while enrolled in the course, the importance of math, and the desire of increasing ones' interest and learning math. The claim of the students captures the realizations in summary:

> *In conclusion, math is not that difficult and it helps me in many ways and it gives me a lot of knowledge that I can apply in real-life situations. Don't think that math is hard because it is only*

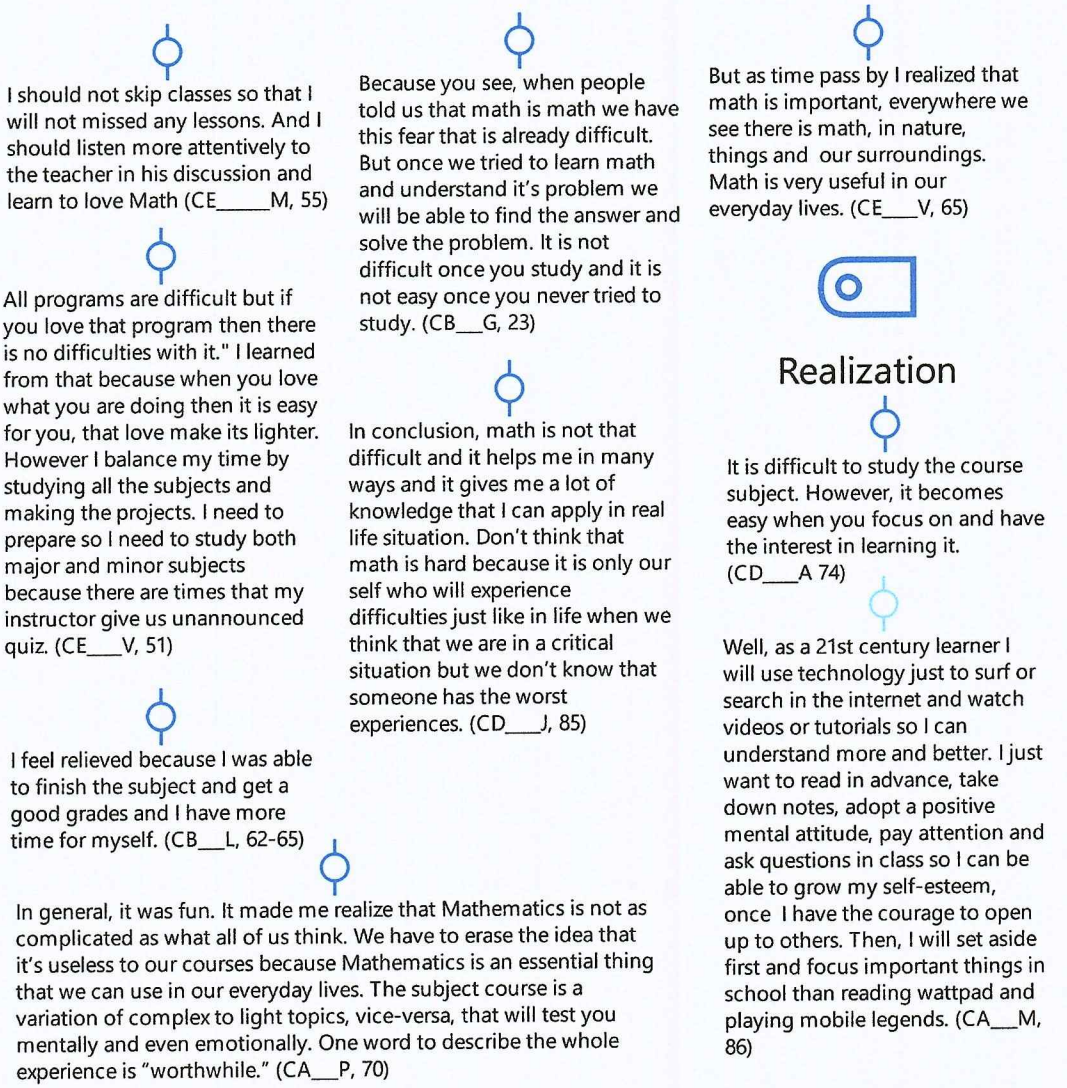

Figure 15. Students Express Realizations in the Learning Process for Mathematics in the Modern World.

> *our self who will experience difficulties just like in life when we think that we are in a critical situation but we don't know that someone has the worst experiences. (CD_J, 85).*

Q2: What are the Lived Experiences of the Instructors Teaching the Course Mathematics in the Modern World?

A typical day for a teacher in Mathematics in the Modern World conforms with the usual lesson sequence. It begins with a motivation followed by the lesson proper which usually includes the discussion about the topic. A series of activities are then given to supplement learning, then closure and some take-away for the next meeting. There seems to be nothing peculiar about the course at glance but inside it in the perspectives of teacher-subjects teaching the course, the intricacies lie in between, before and after the entire sequence of lessons. It also adopts strategies that are not the usual chalk and talk in teaching Mathematics accompanied by assessments that are mostly performance-based.

In this discussion, the lived experience of the teacher-subjects is weaved as one to convey the phenomenon. It is presented in the turning points of teaching and learning which is *beginning instruction, during instruction,* and *after instruction.* In each turning point aspects of reflections are revealed which will then be re-analyzed in the succeeding sections of this paper to synthesized the teaching experience of the teacher subjects leading to the identification of themes, structures, and essence.

Beginning instruction. *What to teach* is the essential question before a lesson sequence. When teacher-subjects were asked as to what they are teaching in the course, they provided a perspective that Mathematics in the Modern World is a course that combines other areas in mathematics. It highlights the significance of math and provides the historical narratives of math. What is also interesting to note is the fact that the course highlights the importance of math to life. IT underscores the study of math as finding patterns, involves statistics, math in nature or environment, investment and finance, math as language as well as problem-solving. All these crafted to emphasize its application to real-life situations and that math is not just all about numbers as one teacher presents the reaction of a student in the class as:

> *When the objectives of the mathematics in the modern world was explained and they were like "Ah! an math ngayan diri la all about numbers [Translation: Math is not just all about numbers]" (Teacher A, Pos. 22)*

These conceptualizations of what to teach in Mathematics in the Modern World may seem to be congested but was opined to be otherwise by a teacher subject:

> *I can compare that students understand more the topics in mathematics in the modern world because the topics are not that heavy unlike any other math subjects, that is just how I see it. (Teacher A, Pos. 30)*

The views of teacher-subjects to the course are not unanimous as one conveys a negative lens to the course being offered. It was elucidated that:

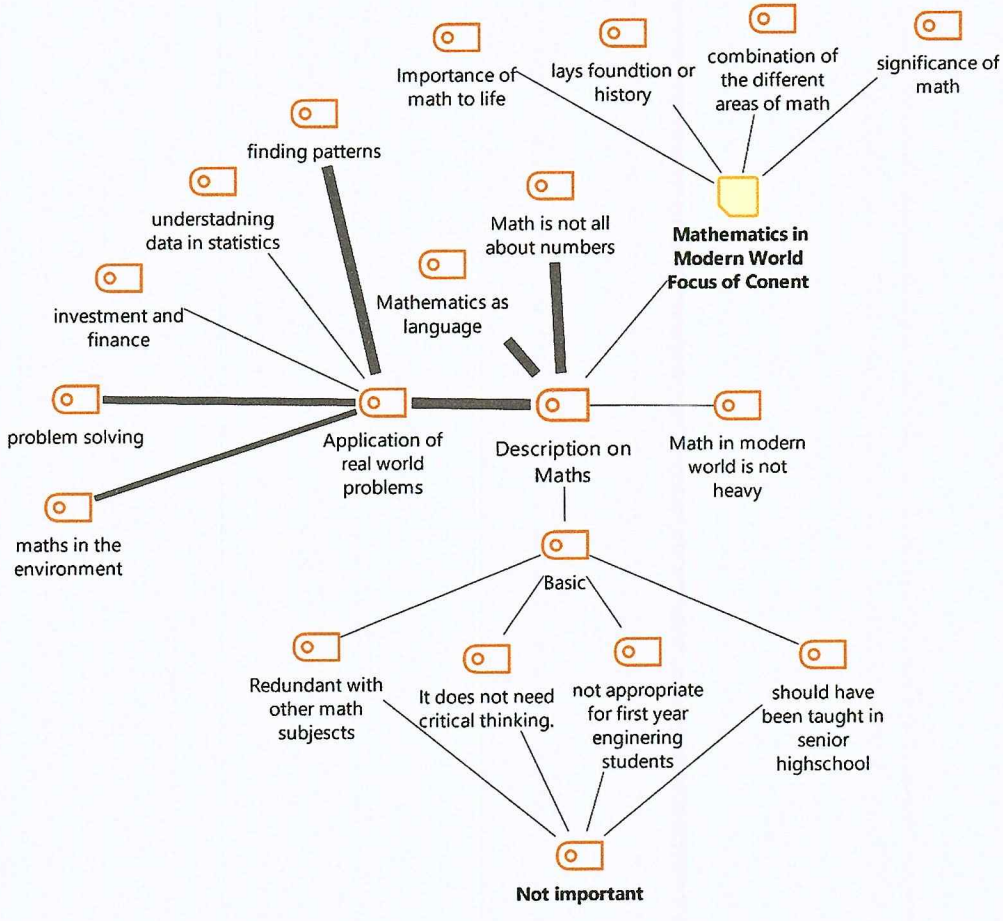

Figure 16. What to teach in Mathematics in the Modern World?

> *Because it lays (the course) the foundation or history of some lessons which the child can already comprehend. It is not important anymore, it should be learned and known by the students already, so if they enter college, the learner is already knowledgeable about the mathematicians and the lessons. I used to give the lessons as a reporting activity and as the facilitator of learning, I summarize the lesson and add some information regarding the topic and link it to the importance and usefulness to their program. (Teacher B, Pos. 30)*

The subject highlighted that course should have been taught in high school. It was added that the course is also *"basic, mostly the lessons of the subject are the principles of the mathematician which should be taught in high school"* (Teacher B, Pos. 20). When asked what makes the course basic? The subject stressed the fact that this is "because there are no computations and application and the lessons taught are just principles made and proposed by mathematicians" (Teacher B, Pos. 22). Apart from this the course was viewed to be redundant with other subjects and does not promote critical thinking. The teacher concludes that the course is *not important.*

During Instruction. Teaching the course Mathematics in the Modern World was dubbed to be different from other courses. The figure below shows that the peculiarity lies in the atmosphere of teaching and learning wherein it promotes interaction between students and teachers and among students themselves.

Interesting findings also show that the journey of teaching and learning process encourages students' creativity, provides an exposition of students to showcase their knowledge in the arts, a room for them to explore and act on roles

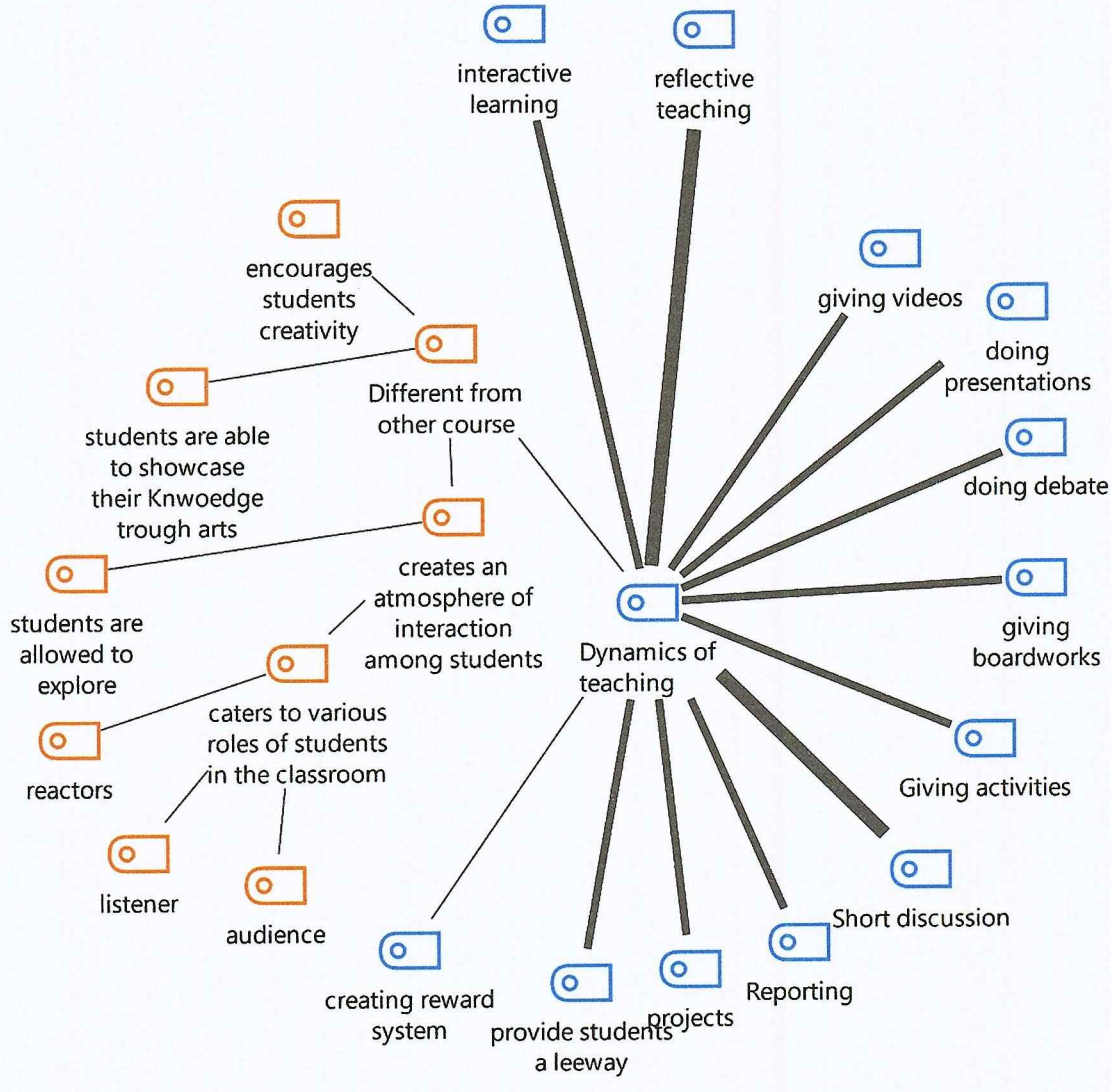

Figure 17. Dynamics of Teaching During Instruction

in the teaching-learning process i.e., a listener, audience and reactors as one puts it:

> *...it is more on exploration by the students. They have to explore how they are going to present it to the class. If the students present role-playing, what will the others do as a reaction? Are they just an audience? Or just a listener? There's this student who presents an oral presentation and of course, there occurs an interaction (Teacher D, Pos. 30)*

This mechanism wherein students are given the leeway to explore the course was also echoed by another teacher-subject:

> *I told them that I'll give them leeway, do whatever you want to present. When they presented it, there was role-playing, composed a song, or even oral presentation, blogging, and documentary. It was good, and I have their videos. I just realized that this subject was a good experience for it is different. You can do anything you want as an output performance. Teacher as the facilitator will just facilitate and let your students explore how they will present the topic (Teacher D, Pos. 28)*

The same narrative also conveys the dynamics of teaching in Mathematics in the Modern World that being facilitative. Another important aspect of this dynamics is the teachers' reflection on students' performance and capacity which drives the lesson further to a direction that is responsive to the student's needs as expressed *"I evaluate what discussion is good for my students"* (Teacher D, Pos. 36). The dynamics of teaching the course is well capsulated by the narrative to wit:

> *In my 22 years of teaching, what we only expect from the subject Mathematics is more onboard work. Once you give the concept, the examples and the students will solve the problems. It's what the subject contains, right? The Trigonometry, Algebra, Calculus were more on discussion, a traditional method- concept, problem sets, examples, application, and evaluation. And now, it changes a bit because when the class started, I did some explorations. I let my students explore. (Teacher D, Pos. 34).*

The dynamics also shows that students are given leeway, a voice, a deciding factor in the lesson sequence. They are allowed to explore and convey their understanding or conceptualization that they identify to be efficient. This is manifested by the multitude of activities provided as well as the varying styles the students convey their understanding ranging from the usual discussion, to videos, reciting poems, singing, dancing, and even debates. Activities that several years ago were not usually applied in a mathematics classroom. Indeed, "in the subject Mathematics in the Modern World, you can do lots of activities" (Teacher D, Pos. 34).

After Instruction. Following the appropriate lesson sequence, assessment and evaluation serve as a culmination to every topic taught. This is also the matter of the experience of the teachers handling Mathematics in the Modern World. Figure 2 showcases varying dynamics of teaching which is also paralleled in the assessment and evaluation procedures. Instead of the usual examinations, students are tasked to do a performance task as mentioned earlier. This shifts the traditional assessment procedures to something authentic and attuned to Outcomes-Based Education. As expressed by a teacher-respondent:

> *...as OBE curriculum which is very interesting and would give a new experience to the students. As a result of the strategy that I employed, my students had fun and enjoy it and made a lot of outputs. They had different outputs and there is no duplication. This group had a different output but if course, all of it were related to the topic even though they presented a song, or a dance. And it shows how really interesting it was. If it will be in a discussion method, students will just get bored and will definitely just listen. (Teacher D, Pos. 32)*

The teacher-subject opines further the effects on students as revealed in the performance of their tasks as shown in Figure 18.

The approach to math as a "light" subject, as opposed to rigid mathematical computations, identified positive effects on students' behavior to mathematics as well as to their performance. Behavior-wise the narrative shows that students enrolled in the course have increased efficacy in math, it awakens the students to the beauty of mathematics and thereby contributes to removing the stigma about Mathematics. The "fun math atmosphere" also draws the interests of the students at a cognitive level such that their students are starting to read about Math to understand it better. The performance of students in Mathematics was characterized to be good with claims of more than 75.00 percent performing better in their quizzes. Apart from this, students are also reflecting on Math vis a vis their experience, on the instances wherein math played an important role in their lives. One teacher-subject share the requirement for the midterm in the class with the corresponding reactions of the students to wit: "In the midterm I let them make hmmm an art, art like mandala and appreciation, so by that, they're enjoying, they were like "Sir kaupay man san sudsini sudsana" *[Translation: Sir this is really good]* (Teacher A, Pos. 26).

On the other hand, assessment procedures also reveal some points of interventions for the class specifically on how topics are to be unfolded and to the course in general. It was underscored that in a course activity which is reporting:

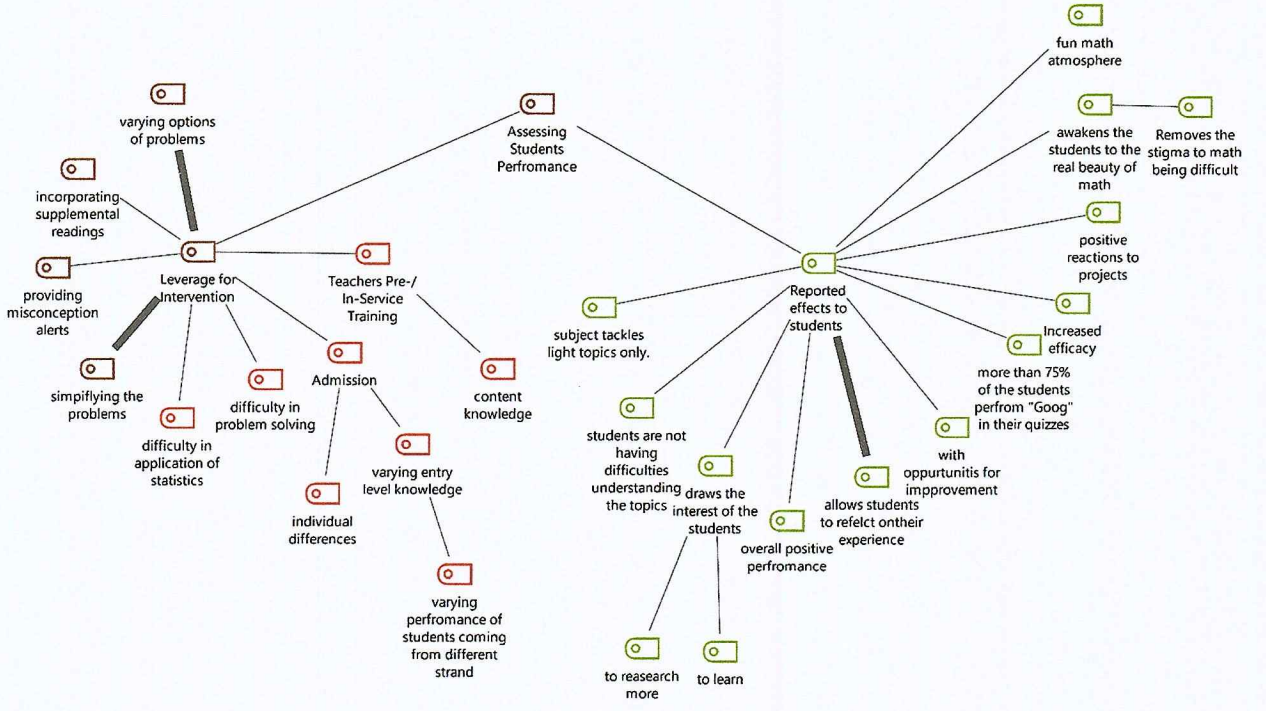

Figure 18. Assessing Students Performance, its Leverage for Intervention and Reported Effects of the Course to Students

> *Some learners are good at reporting as they supplement their reports with materials, for others, their reports lack substance. What I do is to impart something for them to get or learn what they need to learn from the subject which will be useful for their program. (Teacher B, Pos. 32).*

The narrative shows that teacher's interaction and processing to students' performance are an essential key to unpack the lesson and get rid of several misconceptions. The teachers' immediate response to students' assessment as it unfolds in the classroom is also echoed by the narration below:

> *I make the problems simple, although for us it's already easy for them I make it easier and I give problems which we already solved and I just change the data and check if they're studying or not like I just change x to y. (Teacher A, Pos. 50)*

This proactive stance and not just responsive communes to students a classroom pressure that are within their grasps or escalates from a common ground before spiraling it to more complex analogies. As expressed:

> *I give them a lot of different kinds of, kinds of problem-solving, like example when this happens you do this, when the problem is like this you do this, I give them different kinds of problem sets to help them. (Teacher A, Pos. 40)*

These interactions are important to ensure that outcomes of the course are delivered if otherwise the teacher share that: "*I let them repeat their report and let them research further about the topic*" (Teacher B, Pos. 34). Such an occasion was shown to occur when students are exposed to problem-solving and to the application of statistics.

Another facet of observation the teachers-subjects are gleaning from both interactions and performance of students has something to do with student readiness. This captures the admission process, wherein students are coming from different strands in Senior High School. The teacher-subject exclaims that:

> *The problem rises as other students are from STEM strands and some are non-stem strands, and as they enter college, they are merged together which results for others really having difficulty in catching up with the lessons… We cannot make sure if the students really had passed the series of test before entering college since we are not in charged with the testing (Teacher B, Pos. 42).*

This varying entry-level cognition affects their performance in math general as shared "maybe their foundation with math subject is not good" (Teacher A, Pos. 54) along with their innate individual differences.

On the other hand, teacher-subjects opined the need to revisit teachers' pre/in-service training to ensure that they know the content to teach in high school assuring of students that are if not the same comparable entry cognitive levels. As one puts it:

> *The problem is, some teachers in high school despite being considered as Mathematics majors they are not well-equipped in teaching the subject. Sadly, some teachers do not have ample knowledge and expertise regarding the subject (Teacher B, Pos. 44).*

Synthesis of Teaching Experience in Mathematics in the Modern World. Teachers-subjects experience to the course encompasses an array of descriptive that captures (1) enjoyable and fulfilling course experience, (2) type of teaching approach, (3) venues for student interaction, (4) negative claims towards the course.

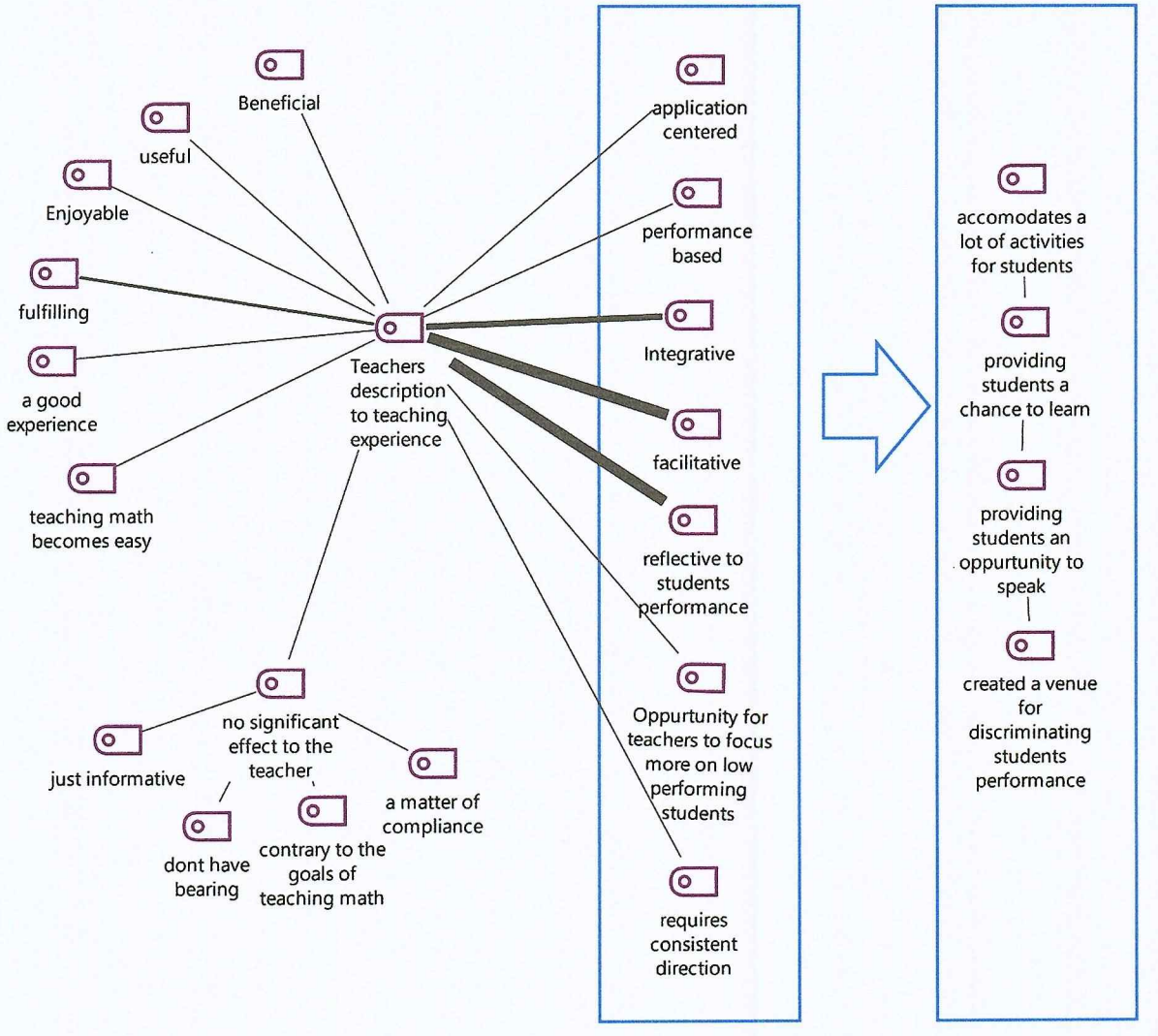

Figure 19. Synthesis Map of Teachers Description to their Teaching Experience in Mathematics in the Modern World

Enjoyable and fulfilling course experience. The teaching experience of teacher-subjects was claimed to be fulfilling as one puts it: "It has a positive impact to me as it indicates that the goals you want them to achieve were met" (Teacher B, Pos. 38). Other teacher-subjects also shared such feeling of fulfillment, along with the feelings of joy, ease in teaching the course, and the overall feeling of a good experience. On the other hand, the usefulness of the course on the part of teacher-subject was very specific to the utility of students' output to research activities of the teachers necessary as faculty members of an HEI.

Type of teaching approach. The teachers' method of teaching utilized for the course is generally integrative, facilitative, and reflective. These three keywords highlight the course to be application centered and performance-based articulated consistent decision-making in the classroom and on the focus to identify students who greatly need intervention. The quality of teaching was materialized by the teacher-subjects using varied venues for student interaction.

Venues for student interaction. The use of teaching approaches that are facilitative integrative and reflective of student performance bridged teacher-student interactions through varied student activities. These interactions culminate in a venue wherein students are heard, an opportunity to speak up, and the chance to learn. These mechanisms also ushered teachers to discriminate students cognitively, allowing them to

segregate those who need help from those within the learning curve or those that are beyond the curve of student performance. The varying activities identified in this narrative reinforced teaching mitigates those who need it and enrich those who are on top of the class.

Negative claims towards the course. On the contrary, the course was deemed to be of "no bearing" to the degree sought by the students, especially in engineering programs. This actuation provides that the course was basic and should have been discussed in high school. With this mindset, the teacher-subject of the study finds the course just informative, nothing more or less, implemented as a "matter of compliance" which was opined to be irrelevant to the goal of mathematics education. In general, the teacher-subject claims that it is of no significant effect on once teaching experience.

Q3.1: What are the Meanings, Structures, and Essence of the Lived Experiences in Learning and Teaching Mathematics in the Modern World as Described by the Learners?

Meanings being conceptualization of the subjects under study to glean the essence of a certain phenomenon (Giorgi, 1994) in this case the learning process is presented in four themes. The underlying structure across all themes is then examined drawing the positions of the students in the learning process. Lastly, the essence of learning Mathematics in the Modern World is drawn emanating from

the meaning and structure. Table 1 presents a summary of themes, structures, and essence.

Table 1

Themes, Structures, and Essence of Learning Mathematics' in Modern World

Themes	Structures	Essence
Theme 1. Positive views towards learning Mathematics in the Modern World is based on how well it impacts one's life. *Theme 2*. Negative views toward learning mathematics are aggregated by the stigma of math. *Theme 3*. Negative views towards learning mathematics are augmented by the disconnect to one's personal endeavor. *Theme 4*: Negative views towards math is analogous to below-average performance in math.	Views towards Mathematics in the Modern World is an articulation of Experience	A nightmare to Dreams: Learning Mathematics in the Modern World is a participative and facilitative encounter with real-life applications of mathematics, bordered by the quality of the teacher, and the attributes and challenges of the learner.
Theme 5. Mathematics in the Modern World is centered on real-life applications. *Theme 6*: Mathematics in the Modern World is outcomes-based and involves doing non-traditional assessment and evaluation. *Theme 7*: An effective teaching approach to Mathematics in the Modern World highlights participative and facilitative learning.	Participative and facilitative learning bridges outcomes-based education for Mathematics in the Modern World highlighting real-life applications	
Theme 8: The characteristics of a teacher drive the effectiveness of the teaching approach.	Teachers teaching characteristics make and unmake views towards Mathematics in the Modern World	
Theme 9: Personal positive attributes of learning propels success in Mathematics in the Modern World. *Theme 10*: Personal challenges and constrictions impact success in Mathematics in the Modern World	Personal challenges can be mitigated by personal positive attributes towards learning Mathematics in the Modern World	

A total of 10 meanings presented as themes were identified from the narrative of learning experience among students. These themes reveal four structures that translate to a unified essence of learning Mathematics in the Modern World.

Theme 1: Positive views towards learning Mathematics in the Modern World is based on how well it impacts one's life. Positive views towards the course which presented the *general view of the course, attributes of positive views, and personal impact* put weight to the impact on one's life as the core meaning of the conceptualization. Undoubtedly, the premium to experience is higher when it coveys to one's self, to one's inner sanctum, to one's self-awareness A self-aware adult is described to be of independent self-concept, directing their own learning, problem-centered and internally motivated (Steiner, 2014). The positive views towards mathematics and how it impacts one's life is the conveyor to the journey of self-awareness.

Theme 2: Negative views towards learning mathematics is aggregated by the stigma of math. Stigma is a term coined as "a mark of shame or discredits" (Merriam-Webster, n.d.). This provides that stigma on math is a mark on math being difficult. Having said that, students repeatedly identify the terms like *"math is not my forte"* or *"I don't like math."* This was seen to provide evidence of their experience in Math - the many times they fail in math or did not prosper in doing math as shown in the cross-case results. Hence, the negative views of the students could be interpreted as a result of the stigma of math. Such now lingers in the

faculty of their mind and surfaced as psychosomatic behaviors as shown in the narratives. The mind, therefore, was in a way already conditioned and assimilated (Corpus & Salandanan, 2015) the stigma of math to ones' senses. This leads to simply wanting any lesson or discussion on math to end as exposed by the student. This fortifies the meaning-making in this narrative that the stigma aggregates ones' negative view of math.

Theme 3: Negative views towards learning mathematics is augmented by the disconnect to one's personal endeavor. Another aspect of argumentation to the attribution of the negative vibes to math is when it has nothing to do with your own self. It could be likened to doing something you're not motivated to do in the first place. The narratives identified that the Mathematics in the Modern World is not related to the program they are enrolled in - a disconnect to one's personal endeavor. Thus, students tend to just comply because it is required not because they wanted to result in performance that is *simply passing*. The negative views, therefore, which highlights *no importance of math* is an existential proof that one's views to the course were augmented by its disconnect to one's personal endeavor.

Theme 4: Negative views towards math is analogous to below-average performance in math. As shown in Figure 5, no student performing above average raised any negative view of the course. As performance declines the number of individuals claiming a negative view towards the course increases. This provides a mirror between the two phenomena–the phenomenon of failing and the phenomenon of not liking the course.

Structure 1: Views towards Mathematics in the Modern World is an articulation of Experience. Meanings were drawn as presented in themes one to four as intertwined conveys ones' straightforward structure or interaction i.e., experience dictates views. This structure is supported by the notion of the impact of previous experience (Barbash, 2017). It is underscored that:

> *the situations you have previously encountered, as well as how those situations were managed, have a significant impact on your perspective for all similar or related situations that follow (para. 7).*

The views therefore on math *as aggravated by stigma, negative views to math as analogous to poor performance, disconnect to one's personal endeavor and impact one's life* is in a way a retracing of experience conforms to such notion. Thus in general, experience impacts perspectives.

Theme 5: Mathematics in the Modern World is centered on real-life applications. The summit of reported contents for Mathematics in the Modern World as shown in Figure 6 is "more on real-life applications." Such was illustratively made as revealed by the narratives that the central theme of the contents is on how it can be applied to real-life situations. The rest of the content identifies in Figure 6 was seen to be delivered in such form – the real-life applications.

Theme 6: Mathematics in the Modern World is outcomes-based and involves doing non-traditional assessment and evaluation. Figure 7 shows a combination of traditional and non-traditional modes of assessing and evaluating students. The principle that governs such a choice of conveying the lesson and

measuring students' performance was based on an outcomes-based education approach as promulgated by CHED.

Theme 7: Effective teaching approach to Mathematics in the Modern World highlights participative and facilitative learning. Participative and facilitative modes of delivering instruction were acknowledged by the students. Although, as shown in Figure 9, there are other specific forms of activities that were conducted which as perused in the context of teaching strategy all these points to participatory and facilitative learning.

Structure 2: Participative and facilitative learning bridges outcomes-based education for Mathematics in the Modern World highlighting real-life applications. Themes 5, 6, and 7 highlights that the learning process was facilitative and participatory and centers on forwarding real-life applications of the reported contents of the course. Additionally, it underscores the utility of outcomes-based education by tapping traditional and non-traditional assessment and evaluation procedures. These conceptualizations point to a discourse in the structure of how learning transpires.

Theme 8: Characteristics of a teacher drives the effectiveness of the teaching approach. The student is the center of the learning process while the teacher is the captain of the ship. The teachers' personality is a factor that may affect the learning process (Mondal, 2020). It is underscored that interactions of personalities, that of student and teachers, attributes to the type of behavior that may spring from the teaching and learning process. Thus, as shown in Figure 10,

the teachers' characteristics being a good teacher, approachable, kind, and considerate direct how the student would behave as well thus:

Structure 3: Teachers teaching characteristics make and unmake views towards Mathematics in the Modern World. It is underscored that personalities interact and in such a process they may be compatible or not. As revealed in the narrative the interaction resulted in views that logically can be claimed as: positive interactions result in positive views while negative interaction results to otherwise. A good teachers' characteristics, therefore, provide for a student an atmosphere that is conducive to learning. Thus, teachers' characteristics are crucial both in the learning process of the students.

Theme 9: Personal positive attributes of learning propels success in Mathematics in the Modern World. Apart from the intellectual factor that attributes to success in a certain course, emotional and social factors (Mondal, 2020) may also affect the learning process of the students. This was articulated in the narratives of the students where positive personal attributes were linked to success and the negative attributes to a non-participative nature of the learner. Context to understand this phenomenon as to the roots of the positive attitudes and otherwise is necessary to be underscored hence theme 10 was also articulated in this study.

Theme 10: Personal challenges and constrictions impact success in Mathematics in the Modern World. The challenges of the students as shared centers on internal and school-related factors which were also seen as contributors

to success in the course (Mondal, 2020). The constrictions of the person are the limits of what one can do. In the case of the narratives, students are facing challenges that oftentimes no longer in their hands. Their personal issues of financial concerns and even on how they are managing their course loads is something that has truly provided a base of how far they can spring on and nothing more.

Structure 4: Personal challenges can be mitigated by personal positive attributes towards learning Mathematics in the Modern World. The last structure in this narrative of learning among students provides both limitations and a personal attitude. It is underscored that each individual is not born of perfection, each has their own challenges. However, what the points of the narrative are on the utility of positive outlook, one's positive attributes to lessen the impact of the challenges of not eradicating it. The narrative posited that despite circumstances the will of the person can prevail. The narrative also calls to look at the silver lining of the issues that the students are facing in the learning process as one author puts it "to learn we need not be told" (Argel, 2008, p. 231).

All these conceptualizations of the learning experience of the students in Mathematics' in the Modern World lead to the essence of learning the course.

Essence 1: Nightmare to Dreams: Learning Mathematics in the Modern World is a participative and facilitative encounter with real-life applications of mathematics bordered by the quality of the teacher, and the attributes and challenges of the learner. The essence of learning has to be situated first from the

learners' perspective. Who is the learner? A learner is a person, who hails from varying types of family status, whose residence is of unequal distance from the school which may entail traveling for at least an hour to school, of affordances that are unique to each own and is confronted with varying challenges. These could be like finances and even personal issues of belongingness or stigma towards a subject say Math. The learner could also be affluent, living in the city close to school. The bottom line is, the learner comes in different shapes of mental, physical, and psychological constructions and affordances. These are the limits to oneself. Though it is true one can stretch and even at times go beyond the threshold of one's limit, but the journey may be arduous.

On the other hand, a learner in a school learns from the guidance of a teacher. So, the question is, who is the teacher? What forms a teacher? The teacher too can come in various shapes. The teacher may be old, maybe single, married, maybe affluent, with a depth of experience say 32 years, or a mere two years and may be challenged as well.

From the aforementioned narrations, school is the sphere where Mathematics in the Modern World, the phenomenon under discourse, is recited. The actors that interact in school are the students and the teachers, which as mentioned have their own variations. The subject of learning on the other hand is math, and it too has its own stigma which imprinted on the learners beforehand. Thus, the very essence of the learning experience of the students in Mathematics in the Modern World could be likened to a *nightmare and dreams*. Nightmare,

because after twelve years of schooling it still haunts them. Dreams, because now they are seeing the end of the rainbow. The instances in which such experience translates to a nightmare or a dream is on how participative or facilitative their encounter with math through real-life applications. From this encounter, they decide based on their limitations or use their attributes to wade off from the witch in the nightmare.

Q3.2: What are the Meanings, Structures, and Essence of the Lived Experiences in Learning and Teaching Mathematics in the Modern World as Described by the Teachers?

Meanings being conceptualization of the subjects under study to glean the essence of a certain phenomenon (Giorgi, 1994) in this case the teaching process is presented in four themes. The underlying structure across all themes is then examined drawing the positions of individuals in the teaching process. Lastly, the essence of teaching Mathematics in the Modern World is drawn emanating from the meaning and structure. Table 2 presents a summary of themes, structures, and essence.

Theme 11. The conceptualization of the purpose of Mathematics in the Modern World is misaligned. The description of the course Mathematics in the Modern World as provided by CHED is that "it deals with nature of mathematics, appreciation of its practical, intellectual, and aesthetic dimensions, and application

Table 2

Themes, Structures, and Essence of Teaching Mathematics' in Modern World

Themes	Structures	Essence
Theme 11: The conceptualization of the purpose of Mathematics in the Modern World is misaligned. *Theme 12*: Teaching Mathematics in the Modern World is an Opportunity to Shift Method of Traditional Teaching Math's with emphasis on the student at the center of the teaching and learning process *Theme 13*: Teaching Mathematics in the Modern World Mitigates the Stigma Against Mathematics *Theme 14*: Teaching Mathematics in the Modern World evokes students as the center of the teaching and learning process	The utility of Mathematics in the Modern World is dwarfed by the rigor of the program enrolled. Teaching Mathematics in the Modern World is a dialogue between student and teacher in appreciating math, its human connections, it posits a shift from traditional to active learning strategies and embraced the Outcomes Based Education in HEIs.	The essence of teaching in general must capture what the program as a whole intends to deliver not what the course purports to advocate. Boring to Fun, Isolation to Interaction: The essence of teaching Mathematics in the Modern World is to facilitate students to appreciate math and bridge the stigma of the past to the realities of its utility to once life.

of mathematical tools to daily life. Also, the course is a general education subject, the first college math subject, and highlights the topics, mathematics in nature, as language, and as exhibited in various disciplines (CHED CMO NO. 20, 2013). The intention of the commission is very clear however, the findings of the study reveals that there is a degree of misalignment as to what the course is purported for, to what the course connotes to a whole program or a degree. This is expressed by a teacher-subject whose experience is seasoned already for 32 years. The narrative evokes that the course is redundant and should have been addressed in basic education and not in an HEI whose purpose is to produce professionals. The

judgment to the course being of no importance to the degree pursued by the learner may be valid to the perspective of the teacher and concerning such vast teaching experience along with the nature of the program being math-related. The theme also posits an issue of a structure as once conceptualization bears a lens of the program versus that of the commission purported as stated.

Structure 5: the utility of the course Mathematics in the Modern World is detracted by the rigor of the program enrolled by the learner. The theme being a misaligned conceptualization is a context that has to be revisited in another lens which leads to a propositional issue of whether or not Mathematics in the Modern World is a necessary general education course for subjects that are in the first place Math centered.

The narrative of a sole teacher-subject reverberates an essence not of teaching Mathematics in the Modern World alone but of teaching in general.

Essence 2: Teaching, in general, must capture what the program as a whole intends to deliver not what the course advocates. Such spirit of conviction, belief, and mindset although alone in the continuum of teacher-subjects in the study, is pure in its intention. The person intends not to malign the course, but simply provides a conviction that other courses are necessary, and the introduction of such course to a program whose focus is primarily mathematics is in the first place futile.

Theme 12: Teaching Mathematics in the Modern World is an Opportunity to Shift Method of Traditional Teaching Math with emphasis on the student at

the center of the teaching and learning process. A classroom atmosphere projected through a dynamics of teaching that promotes interaction among students and teachers provides a room for students to explore learning, and showcase their knowledge in various forms such as in arts, literature, and other creative media was a typical situation of a Mathematics in the Modern World classroom as shown in the narratives. The nature of the course *"being different"* was premised on the experience of the teacher-subjects (2 to 32 years) in handling a math course which was described to be previously traditional. Traditional teaching modalities as described include discussion and the usual chalk and talk. The narratives of teaching Mathematics in the Modern World have shown how non-traditional teaching styles were adapted in various ranges from an assessment, presenting the lesson, activities, and even in the conduct of student evaluations. The teaching process in general purveys how the teachers also learn new roles in the teaching process.

The main strategies employed, interactive and facilitative learning wherein students are involved in the learning process were shown to be effective in various research (Educational Dividens, 2020). It was shown that when students "apply their knowledge to a real-world problem" (para. 1) and "apply their math, science, and language arts knowledge while using the technology, teamwork and workplace skills" (para. 1), they learn the concepts and also earned skills "that prepare them for life" (para 1).

Besides, *interactive teaching* highlights the role of the teachers as they relate to their students in the instructional process (Xhemajli, 2016). The teacher functions as an "instigator of interaction" (p. 31). Interactive teaching, seen as a favorable method to forward understanding among students, is also challenging on the part of the teachers (Xhemajli, 2016). Thus, handling Mathematics in the Modern World provides an opportunity for the teachers to go out from their comfort zones - teaching math the traditional way, to something fun, facilitative, and interactive. The nature of facilitative and interactive learning is also consistent with the theory of constructivism wherein teaching is focused on a procedure of meaning-making and know-how building (Corpus & Salandanan, 2015). Such modality of teaching is also related to experiential learning theory (Salandanan, 2015) as students learn by making sense of direct everyday experiences.

Theme 13: Teaching Mathematics in the Modern World Mitigates the Stigma of Mathematics. The negative or bad experience of students in learning math was shown to have lingered to 25.00 percent of the students (National Numeracy, 2013). This bad experience attributes to math anxiety wherein students feel anxious and resulting in avoidance in math (Chin, 2012). This is the stigma of Math that in the Philippines was shown to contribute to students' poor performance (Jaudinez, 2019). Theoretically speaking, the bad experience occurs as a student relates the study process and the corresponding structural complexity of their learning. Such a process is defined in three dimensions i.e., utilizing, internalizing, and achieving (Biggs, 1979). These dimensions have "cognitive and

an affective component" (p. 381). The affective component details the motivational aspect of the student to learn.

The stigma that is observed in Math was approached in the *affect component* by shifting the modality of teaching from the traditional to more fun, facilitative and interactive manner. This procedure along with the narratives of good student performance in Mathematics in the Modern World provides evidence that the stigma to math can be mitigated by the modalities applied in teaching Mathematics in the Modern World. This conceptualization was supported in an exposition on how Math stigma hinders students education (Lomsadze, 2017) wherein it was emphasized that traditional teaching of mathematics which includes memorizing procedures in doing math leads to the notion that "mathematics is an arbitrary and a limited realm of study" (para. 4). The disconnect on how math is approached in the teaching process can be prompted to contribute to the stigma if not the root of the stigma. It is noted that when a single student is anxious about math this creates a negative attitude among other students towards math as well (Lomsadze, 2017).

The narrative of the study posited the shift of the methodologies of teaching mathematics as an avenue to debrief students on their stigma and approached mathematics in its utility to oneself and the real-world situations in general.

Theme 14: Teaching Mathematics in the Modern World evokes students as the center of the teaching and learning process. As shown in Figures 2, 3, and 4 students are gleaned to be at the center of the entire teaching process. This notion is not new and is have been promulgated in various policies of DepEd (DepEd No.

21, 2019), CHED, and even in some philosophical roots of strategies and methods of teaching specifically in experiential learning (Corpuz & Saldanan, 2015), and constructivism (Bruner, 1960). What the study reveals is the instance in which these promulgations are put to practice and have shown positive effects on students as reported.

Structure 6: Teaching Mathematics in the Modern World is a dialogue between students and teachers in appreciating math and its human connections, accessed using facilitative and interactive strategies that embraced the Outcomes Based Education Policy. The nuances which were logically twined for themes 2, 3, and 4 leads to a structure, a dynamic of interaction, between the teaching processes and its focus as shown in Figure 20. Teaching Mathematics in the Modern World is posited to have transcended the traditional forms of teaching to a mechanism that reflects student learning, responsive to their contexts, prior learning, and to students' personal experiences highlighting the focus of the interaction to be the students. It is a dialogue (Figure 20). A conversation between the teacher and the student in the language of assessment and the parlance of interactive and facilitative teaching. It is also noted that this structure, teachers' and students' interaction, is reinforced by policies specifically the Outcomes Based Education that is promulgated by CHED.

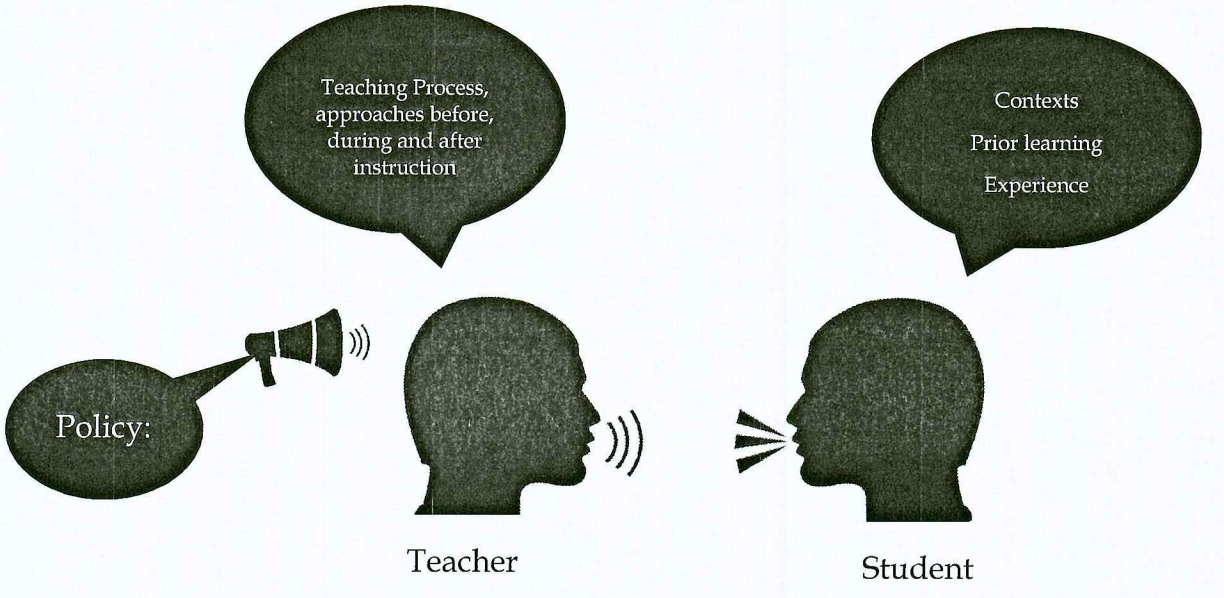

Figure 20. Teacher and Students Interaction in a Teaching Process

Essence 3: Boring to Fun, Isolation to Interaction: The essence of teaching Mathematics in the Modern World is for students to appreciate math and bridge the stigma of the past to the realities of its utility to once life. The second essence that springs in this phenomenon are on the teaching of Mathematics in the Modern World. What is it all about in the first place and how was it translated in the structure, the process of interaction between students and teachers. It was revealed in the study is that teaching the course is purposed primarily for students to appreciate math and highlight its utility to ones' life. In so doing, the boringness of math was shifted to fun and the isolation of its concepts to the interaction with other conceptualization in math and real-life applications. Teaching Mathematics in the Modern World is not just for the students to learn a new concept in math but rather to relearn it in a perspective where it is being embraced, where students will no longer be anxious about it, where the purpose of math is underscored, where its complexity is rationalized for its significance and its contribution to human endeavor.

Q4: How do these Lived Experiences in Teaching and Learning Mathematics in the Modern World Relate in Terms of Meanings, Structures, and Essence?

A total of 15 themes were drawn from the narrative of students and teachers' participants of the study i.e., (Themes 1 -10 for students, Themes 11-14 for teachers). From these themes' interactions between themes 2 and 13, 6 and 12, and 7 and 14 were seen.

Firstly, it is noted that themes 2 and 13 talks about the stigma on math and how these aggregates to negative views among the students whilst seen to be mitigated by teaching the course Mathematics in the Modern World.

Secondly, the interaction between themes 6 and 12 is seen as related to outcomes-based education which was an opportunity for the teachers to shift from traditional to student-centered methods.

Lastly, the relation between themes 7 and 14 articulates students to be the center of the teaching and learning process afforded in a participative and facilitative approach to teaching and learning.

The limited intersections between themes derived from the students and teachers constrict the creation of a new structure. The few intersections are expected from the narrative as it is pure to each perspective crucial to a phenomenological study of the interaction between groups. However, the essence of teaching and learning was constructed as a medley of intersection and with the codas of peculiarities of the experiences of each group of respondents to wit:

General essence: Nightmare to dreams, boring to Fun, isolation to interaction: Teaching and Learning Mathematics in the Modern World is geared towards the appreciation of math by bridging the stigma of the past through a participative and facilitative encounter with real-life applications, bordered by the quality of the teacher and the attributes and challenges of the learner.

Chapter 5

SUMMARY OF FINDINGS, CONCLUSIONS, AND RECOMMENDATIONS

This chapter presents the summary of findings on the lived experience of students and teachers towards learning and teaching Mathematics in the Modern World. The findings lead to the identification of meaning, structures, and essence captured in the conclusion of the study. Also, from the revelations of both teachers and students guided by the imperatives of the conclusions the recommendation was laid to ground.

Summary of Findings

Lived experiences. This summary provides for the learning and teaching experience of the subjects to the course.

Students' lived experience. Students, 13 randomly selected subjects from the locale from the four colleges of the university, highlighted their course learning experience in the following turning points: *The opposing views toward Mathematics in the Modern World; Course content: Students' recollection; Requirements: What it takes to pass; Approaches to teaching: A yes or no from students' perspective; Recommendations to teaching approach; Students shades of learning behavior; Students perceived challenges; and Students realizations and reflections.*

The positive views of students towards the subject provide for a connection to the feeling of belongingness in the class activities. The course was also described

to be "easy" since they can relate to the course and has a seeming control of the learning process. This translates to the appreciation of the course, to change in perception - the mitigation of the sigma that is math, and to the attitudinal levels of impact such as efficacy and sense of responsibility.

Another student added the notion of how math is important with their experience providing for the shift of unwanting narratives to the utility of math to human endeavor. On the other hand, the negative views towards the course are dominated by its claims of difficulty like in the instance of *problem-solving*. Narratives of psychosomatic episodes were also heard from the students: "*dizzy*", "*boredom*" resulting in being "*sleepy*", and the description that math as "*stressful*". Experience of *discrimination* was also shared as: "You are already a college student, but you didn't know how to solve a problem in Mathematics in the modern world subject" (CB_M1, Pos. 31). The impact was claimed to be hurting. The views towards math are contradictory as expected since the students are purposely selected to represent varying performance levels in Math. Cross-case findings show that few of the average students and all of those who are below average and who failed in the course provide negative views towards Mathematics in the Modern World.

The content of Mathematics in the Modern World is more on real-life applications of the specific topics of the course like number patterns, sequences, nature of mathematics, as language, logic, statistics, and other basic concepts. On the aspect of, course requirements traditional to the authentic form of assessment

and evaluation were utilized in multitude, employing varied techniques that are unusual to the previous practice of teaching math. Such holds promising results only if properly communicated, nuanced, and processed.

Teaching approaches were shared by the students to be largely *outcomes-based* that are participative and facilitative. The teacher was also reported to employ discovery and exploratory learning by facilitating the students in the learning process. The course was also characterized as *a lot of activities* and utilizes technology. In the hindsight, the affirmative judgment of the students to the approach of teaching was greatly rooted in the r*einforced discussion, teachers being open to the clarifications, fosters participation in the discussion, gives an advance reading, fun, and meaningful.* While negative judgment to the effectiveness of the course was reported to be rooted in the discussion that is *"not well elaborated,"* with *"few examples,"* and or simply *"providing the reference."* The use of "reporting" as an approach in teaching was perceived by the students as well to the negative. Likewise, dismal contact time for the course was claimed to add to student difficulty. Lastly, teachers' characteristics were reported to impact students' motivation, *confidence,* level of *"independent learning"*. With this, the students forward some recommendations for the improvement in the teaching approach to include *establishing of rapport among students, the inclusion of research or processing mechanism as students' compile reports, to teach the course procedurally, the use of language that is best to convey the lesson,* and *to consider reciting the math subjects in the morning.*

Students' behavior in the learning process includes *"positive mindset, good time management, reflective of faults, passionate"*, conducts *"self-study"* and the *"sense of enjoyment."* Also, *"good relationship with classmates"* provides a strong *"support mechanism"* through peer mentoring and mutual help among students. These contribute to building their habit of schooling and succeed in the course. However, some challenges dominate the students learning experiences like an inappropriate strand in senior high school, *distance to the school,* and logistic support for the requirements of the course. Apart from this, the students are also challenged in terms of *timing of course work, overlapping activities in the university with more time spent working on out of school activities, unconducive time slot, teachers' diversity, and students' academic load,* students' behavior in class as it influences negatively other students claimed to result to *lower self-esteem* especially in occasions when one is teased as *"pabibo."* Another alarming challenge is the reported cheating which counterproductive to the learning of the students and is a factor affecting mindset or worldview.

As a reflection of the learning experience, a student presented a conceptualization to *success which is* that of "enough grade" and "gaining more knowledge." The realization reveals the difficulty of math which can only be overcome by *trying it.*

Teachers-lived experience. A typical day for a teacher in Mathematics in the Modern World conforms with the usual lesson sequence hence, the turning points *beginning instruction, during instruction,* and *after instruction*

Mathematics in the Modern World is a combination of other areas in mathematics highlighting its significance by providing historical narratives. The course also highlights the importance of math to life underscoring the study of math as finding patterns, involves statistics, math in nature or environment, investment and finance, math as language as well as problem-solving. However, criticism was flaunted for the course as it should have been taught in high school and seen as redundant with other subjects.

Teaching the course Mathematics in the Modern World is different from other courses as it promotes mostly interaction between students and teachers and among students themselves. The teaching process was reported to enhance students' creativity, and participation in the teaching-learning process i.e., a listener, audience, and reactors. Dynamics of teaching in Mathematics in the Modern World is entirely facilitative with teachers reflecting on students' performance and capacity.

Students are also given leeway and a voice in deciding lesson sequence and progression by allowing them to explore and convey their understanding or conceptualization. This is accessed through a multitude of activities that range from the usual discussion to videos, reciting poems, singing, dancing, and even debates.

Assessment and evaluation include not just the usual examinations, but as well as performance tasks consistent with Outcomes-Based Education. The approach on math as a "light" identified positive effects to students' behavior to

mathematics as well as to their performance specifically, increased efficacy to math, it awakens the students to the beauty of mathematics and thereby contributes to removing the stigma about Mathematics, and an overall increase in math performance.

In general teaching experience in math conveys (1) enjoyable and fulfilling course experience, (2) type of teaching approach, (3) venues for student interaction, (4) negative claims towards the course.

Meanings, structures, and essence of the lived experiences in learning and teaching Mathematics in the Modern World as described by the learners. A total of 10 meanings presented as themes were identified from the narrative of learning experience among students. These themes reveal four structures that translate to a unified essence of learning Mathematics in the Modern World.

The first set of structure which conveys *the views towards Mathematics in the Modern World is an articulation of experience* was informed by the following themes (1) Positive views towards learning Mathematics in the Modern World is based on how well it impacts one's life; (2) Negative views towards learning mathematics is aggregated by the stigma on math; (3) Negative views towards learning mathematics are augmented by the disconnect to one's personal endeavor and (4) Negative views towards math is analogous to below-average performance in math.

Second, provides that ***participative and facilitative learning bridges outcomes-based education for Mathematics in the Modern World highlighting***

real-life applications. This was an articulation of the meanings that (1) Mathematics in the Modern World is centered on real-life applications and (2) Mathematics in the Modern World is outcomes-based and involves doing non-traditional assessment and evaluation, and (3) Effective teaching approach to Mathematics in the Modern World highlights participative and facilitative learning.

Third, *teachers teaching characteristics make and unmake views towards Mathematics in the Modern World.* This is informed by the characteristics of a teacher drives the effectiveness of the teaching approach.

The last structure for students learning experience that was explicated from the study conveys *personal challenges that can be mitigated by personal positive attributes towards learning Mathematics in the Modern World.* This is provided from the narratives detailed in the study as (1) personal positive attributes towards learning propels success in Mathematics in the Modern World; and (1) personal challenges and constrictions impact success in Mathematics in the Modern World.

In general, the essence of learning Mathematics in the Modern World provides:

> **Essence 1**: Nightmare to Dreams: Learning Mathematics in the Modern World is a participative and facilitative encounter with real-life applications of mathematics bordered by the quality of the teacher, and the attributes and challenges of the learner.

Meanings, structures, and essence of the lived experiences in learning and teaching Mathematics in the Modern World as described by the teachers. A total of four themes

were drawn from the narrative of the teachers which was twined to deliver two sets of structures.

The first structure was focused *on the utility of Mathematics in the Modern World as dwarfed by the rigor of the program enrolled.* This was premised from the conceptualization on the purpose of Mathematics in the Modern World as misaligned

Second, teaching Mathematics in the Modern World is a dialogue between student and teacher in appreciating math, its human connections, it posits a shift from traditional to active learning strategies and embraced the Outcomes Based Education in HEIs. This structure was emanated from the (1) teaching Mathematics in the Modern World is an Opportunity to Shift Method of Traditional Teaching Math's with emphasis on the student at the center of the teaching and learning process; (2) teaching Mathematics in the Modern World Mitigates the Stigma Against Mathematics; and (3) teaching Mathematics in the Modern World evokes students as the center of the teaching and learning process

The above conceptualization and dynamics provided for two sets of essence one are on teaching in general and the other is on teaching the course Mathematics in the Modern World:

> **Essence 2**: The essence of teaching in general must capture what the program as a whole intends to deliver not what the course purports to advocate.
>
> **Essence 3**: Boring to Fun, Isolation to Interaction: The essence of teaching Mathematics in the Modern World is to facilitate

> students to appreciate math and bridge the stigma of the past to the realities of its utility to once life.

Interaction of the lived experiences in teaching and learning Mathematics in the Modern World in terms of meanings, structures, and essence. A total of 15 themes were drawn from the narrative. However, there are only three observe relations between the conceptualization of teachers and students specifically:

(1) On the stigma on math and how these aggregates to negative views among the students whilst seen to be mitigated by teaching the course Mathematics in the Modern World intersected

(2) Outcomes-based education which was as an opportunity for the teachers to shift from traditional to student-centered methods; and

(3) Students as the center of the teaching and learning process afforded in a participative and facilitative approach to teaching and learning.

The structures that were drawn separately from the narratives were retained in the study to herald a much more holistic essence of teaching and learning experience in Mathematics in the Modern World as:

> **General essence:** Nightmare to dreams, boring to Fun, isolation to interaction: Teaching and Learning Mathematics in the Modern World is geared towards the appreciation of math by bridging the stigma of the past through a participative and facilitative encounter with real-life applications, bordered by the quality of the teacher and the attributes and challenges of the learner.

Overall, the study provides that teaching and learning Mathematics in the Modern World is centered on appreciation of math but constricted by the quality

of the teacher and the attributes and challenges of the learner. It repels the stigma of the learners' past notion of mathematics, through a teaching approach that is participative and facilitative with real-life applications.

Conclusions

The following conclusions were drawn from the prevailing narratives of the study, its themes, structures, and nuances.

Conclusion 1.A. Students lived experience conveys a feeling of belongingness in Mathematics in the Modern World course and provides a level of control of the learning process among students to change their perception and attitudes towards math. This is enabled by their application to **real-life** applications for the topic number patterns, sequences, nature of mathematics, as language, logic, statistics, and other basic concepts of math.

Conclusion 1. B. Teaching approaches, largely outcomes-based which are participative and facilitative in nature impact students' motivation, confidence, and level of "independent learning".

Conclusion 1.C. Students positive behavior in the learning process such as "positive mindset, good time management, reflective of faults, passionate", conducts "self-study," "sense of enjoyment," "good relationship with classmates" leads to strong "support mechanism" and a good study habit towards schooling.

Conclusion 1.D. Inappropriate strand in senior high school, distance to the school and logistic support for the requirements of the course, timing of course

work, overlapping activities in the university, unconducive time slot, teachers' diversity, students' academic load, and peer pressure influences negatively students' performance.

Conclusion 2.A. Mathematics in the Modern World is a combination of other areas in mathematics highlighting its significance, historical narratives, the importance of math to life in the study of finding patterns, statistics, math in nature or environment, investment and finance, math as language as well as problem-solving.

Conclusion 2.B. The course was perceived to be redundant and should have been taught in high school.

Conclusions 2.C. Teaching Mathematics in the Modern World promotes interaction between students and teachers and among students themselves, enhance students' creativity, and participatory in the teaching-learning process.

Conclusion 2.D. Assessment and evaluation in Mathematics in the Modern World are in the form of a performance task.

Conclusion 3.1.A. Positive views towards learning Mathematics in the Modern World are based on how well it impacts one's life while negative views towards learning mathematics are aggregated by the stigma on math, augmented by the disconnect to one's personal endeavor analogous to below-average performance in math. Thus, the views towards Mathematics in the Modern World is an articulation of experience.

Conclusion 3.1.B. Mathematics in the Modern World is outcomes-based centered on real-life applications utilizing participative and facilitative learning. Thus, participative and facilitative learning bridges outcomes-based education for Mathematics in the Modern World highlighting real-life applications.

Conclusion 3.1.C. Teacher drives the effectiveness of the teaching approach thus, teachers teaching characteristics make and unmake views towards Mathematics in the Modern World.

Conclusion 3.1.D. Personal positive attributes and challenges towards learning propel success in Mathematics in the Modern World thus, personal challenges can be mitigated by personal positive attributes towards learning Mathematics in the Modern World.

Conclusion 3.1.E. Learning Mathematics in the Modern World is a participative and facilitative encounter with real-life applications of mathematics bordered by the quality of the teacher and the attributes and challenges of the learner.

Conclusion 3.2.A. The utility of the course Mathematics in the Modern World is dwarfed by the rigor of the program enrolled.

Conclusion 3.2.B: Teaching Mathematics in the Modern World is a dialogue between student and teacher in appreciating math, its human connections, it posits a shift from traditional to active learning strategies and embraced the Outcomes Based Education in HEIs.

Conclusion 3.2.C: Teaching must capture what the program as a whole intends to deliver not what the course purports to advocate.

Conclusion 3.2.D. Teaching Mathematics in the Modern World is to facilitate students to appreciate math and bridge the stigma of the past to the realities of its utility to once life.

Conclusion 4: Teaching and Learning Mathematics in the Modern World is geared towards the appreciation of math by bridging the stigma of the past through a participative and facilitative encounter with real-life applications, bordered by the quality of the teacher and the attributes and challenges of the learner.

Recommendations

On the premise of the conclusions of the study, the following recommendations are put forward.

The study recommends that entry-level behavior and cognitive skills of students will be considered before embarking into the course and afford a bridging program to students from the unrelated strand, if necessary. This is to ensure that students are on equal footing in preparation for the course. Concomitantly, psychosocial interventions can be created to mitigate negative behavior, stigma to math, and attitude of students to realign their perspectives to the demands of tertiary education. Similarly, a good attitude in math among students a mechanism

of student support among their peers to foster good study habits among students may be encouraged.

The approach in teaching Mathematics in the Modern World is generally recommended to follow a participative and facilitative nature of teaching. The teaching process should ensure students' motivation, confidence, and independent learning. It should give a premium on the discussion about the utility of Mathematics in the Modern World to real-life applications. Also, the approach should bridge outcomes-based education and real-life uses, foster sense belongingness among students towards the learning task.

On the other hand, teachers should tap their students' creativity in their participation in the teaching and learning process thereby, promoting wider student-student and teacher-student interactions in the teaching and learning process. Also, they may revisit the choice of performance task given to students and refocus it on more tangible course outcomes. Similarly, teachers may explore other learning approaches such as active learning strategies, that would address the stigma dreaded students to shift their perspectives to math from the negative to the affirmative. Relative to this, teachers are encouraged to extend more activities or remediation to students who need more support in learning mathematics

In terms of curriculum development, the GE for Programs offered may be reviewed, specifically, the Mathematics in the Modern World may be revisited in terms of its appropriateness to various programs offered, course content, and

identify other supplementary discussion topics that are related to the programs enrolled by the students.

Further studies on teaching dynamics of Mathematics in the Modern World focused on the negative view towards the course that may be conducted to produce an intervention program. Also, the effects of facilitative and participatory teaching approaches to other courses following an outcomes-based framework may be conducted. Besides, scales may be created for the factors identified in the study specifically on *students' negative learning attitude, learning behavior and dynamics, readiness to learning modality, and preference to teacher characteristics and student performance* may be crafted in a quantitative inquiry. Lastly, to revisit teacher-student interaction, especially for those students who failed in the course, and subject it to case analysis.

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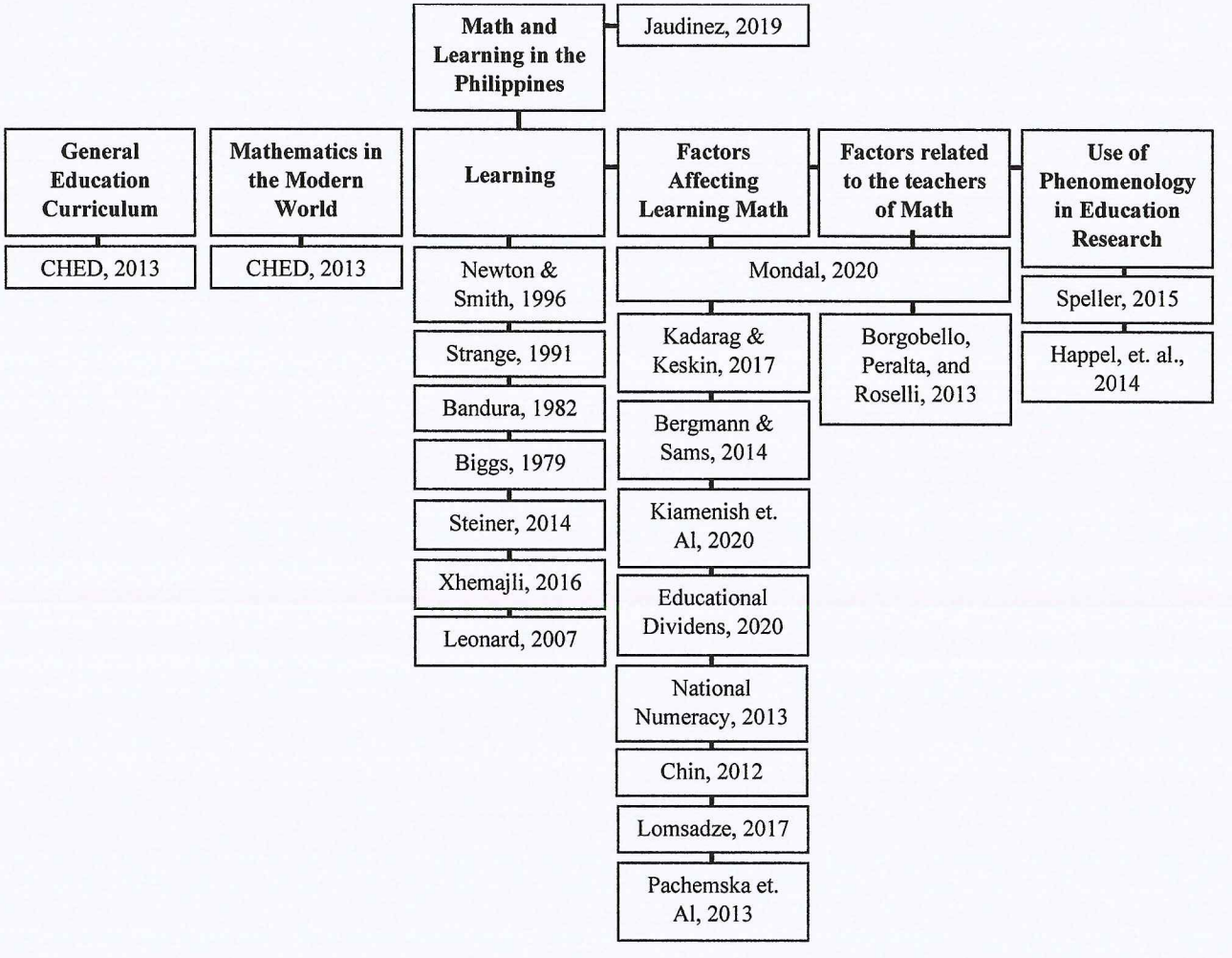
APPENDICES

Appendix A

Literature Map



Appendix B

INTERVIEW GUIDE

Interviewer: Maupay nga aga/kulop. (Say your Salutations)

(Inform the respondents of the purpose of the study). The purpose of this study is to look into their experience as teachers/students in Math in Modern World.

Ask the respondent of his/her willingness to participate in the study and to sign the informed consent. Read each line in the informed consent. Inform the respondent that the conversation will be recorded with anonymity.

Interviewer: (Preliminary question for the teacher)
Maam and Sir, may I know some of your demographics?

How old are you?
How long have you been teaching?
How long have you been teaching Mathematics in Modern World?
What was your course in the undergad?
What about in masters? In Doctorate? (If applicable only)

(Preliminary question for the student)
Hi!, may I know some of your demographics?
How old are you?
What course are you in enrolled in?
May I know your grade in Mathematics in Modern World? (Validate this on record if possible)

Interviewer: Ask the following questions for the teacher:
In as much detail as possible, tell me what it was like for you to teach mathematics in modern world?

Ask the following questions for the teacher:
In as much detail as possible, tell me what it was like for you to learn mathematics in modern world?

Appendix B

INFORMED CONSENT

SAMAR STATE UNIVERSITY

LEADERSHIP | EXCELLENCE | DISCIPLINE | SERVICE

INFORMED CONSENT FORM

Please complete this form after you have listened to an explanation about the research.

Project Title: **A PHENOMENOLOGICAL STUDY ON THE OUTCOMES OF THE COURSE MATHEMATICS IN THE MODERN WORLD**

Researcher: RICHARD N. VERDEFLOR
Post-graduate Student, Samar State University

Thank you for your interest in taking part of this research. Before anything else, the person organizing the research must explain the project to you.

If you have any questions arising from the explanation already given to you, please ask the researcher before you decide whether to join in. You will be given a copy of this *consent form* to keep and refer to at any time.

PARTICIPANT'S STATEMENT

I agree that:

- I have listened to an explanation about the research and understand what the study involves.
- I consent to the processing of my personal information for the purposes of this research study.
- I understand that such information will be treated as strictly confidential and handled in accordance with the provisions of the Data Privacy Act of 2012 or RA10173.
- I agree that the research project named above has been explained to me to my satisfaction and I agree to take part in this study.
- I understand that my participation will be taped/video recorded and I consent to the use of this material as part of the project.
- I agree to be contacted in the future by SSU researchers who would like to invite me to participate in follow-up studies.

Source: Villas, Jonas P. 2018. *Learning Guide in Research in Daily Life 2.* Quzon City: Sibs Publication

I agree that:

- I understand that the information I have submitted will be published as a report, and I will be provided details of the findings. Confidentiality and anonymity will be maintained, and it will not be possible to identify me from any publications.
- I agree that my non-personal research data may be used by others for future research. I am assured that the confidentiality of my personal data will be upheld through the removal of identifiers.
- I agree that my *professional background* may be identified in the final report and waive the right to anonymity for the purposes of this research.

_____

Signature over Printed Name

Date Signed: _____

NB: Please affix signature in all pages

Source: Villas, Jonas P. 2018. *Learning Guide in Research in Daily Life 2.* Quezon City: Sibs Publication

Appendix C

MAXQDA SMART PUBLISHER: CODED SEGMENTS

1. Documents

No.	Document	Created by
1	Teachers\Teacher A	rgv
2	Teachers\Teacher B	rgv
3	Teachers\Teacher C	rgv
4	Teachers\Teacher D	rgv
5	Students_COED\CA_B	rgv
6	Students_COED\CA_M	rgv
7	Students_COED\CA_P	rgv
8	Students_COM\CB_M1	rgv
9	Students_COM\CB_M2	rgv
10	Students_COM\CB_G	rgv
11	Students_COM\CB_L	rgv
12	Students_CET\CC_R	rgv
13	Students_CET\CC_A	rgv
14	Students_CET\CC_P	rgv
15	Students_CCIS\CD_A1	rgv
16	Students_CCIS\CD_A2	rgv
17	Students_CCIS\CD_J	rgv
18	Students_CAS\CE_M	rgv
19	Students_CAS\CE_V	rgv
20	Students_CAS\CE_B	rgv

2. Attributes of Positive Views

3. General View to the Course

4. Personal Impact

5. Teachers Nuances

5.1. Background of Teacher Respondents

5.1.1. Length of teaching experience

1.

"2 years"

[Teachers \ Teacher A; Position: 10 - 10; 5/18/2020 19:04; Weight score: 0]

2.

"32 years"

[Teachers \ Teacher B; Position: 9 - 9; 5/19/2020 16:42; Weight score: 0]

3.

"5 months"

[Teachers \ Teacher C; Position: 10 - 10; 5/19/2020 17:09; Weight score: 0]

4.

"22 years"

[Teachers \ Teacher D; Position: 16 - 16; 5/19/2020 17:50; Weight score: 0]

5.1.2. Professional Background: Masters

1.

"Masters of Arts in Science and Teaching (CAR)"

[Teachers \ Teacher A; Position: 16 - 16; 5/18/2020 19:05; Weight score: 0]

2.

"Masters in Engineering (units)"

[Teachers \ Teacher B; Position: 15 - 15; 5/19/2020 16:43; Weight score: 0]

3.

"Master of Arts in Education Major in Administration and Supervision-27 units"

[Teachers \ Teacher C; Position: 14 - 14; 5/19/2020 17:09; Weight score: 0]

4.

"masters of Arts in Science Teaching major in Mathematics."

[Teachers \ Teacher D; Position: 22 - 22; 5/19/2020 17:50; Weight score: 0]

5.1.3. Length of teaching the course

1.

"2 years"

[Teachers \ Teacher A; Position: 12 - 12; 5/18/2020 19:04; Weight score: 0]

2.

"2 years"

[Teachers \ Teacher B; Position: 11 - 11; 5/19/2020 16:42; Weight score: 0]

3.

"5 months"

[Teachers \ Teacher C; Position: 8 - 8; 5/19/2020 17:09; Weight score: 0]

4.

"second yea"

[Teachers \ Teacher D; Position: 18 - 18; 5/19/2020 17:50; Weight score: 0]

5.1.4. Professional Background: Undergraduate

1.

"Bachelor of Science in Mechanical Engineering"

[Teachers \ Teacher A; Position: 14 - 14; 5/18/2020 19:04; Weight score: 0]

2.

"Bachelor in Science major in Civil Engineering"

[Teachers \ Teacher B; Position: 13 - 13; 5/19/2020 16:43; Weight score: 0]

3.

"Bachelor of Science in Computer Engineering"

[Teachers\Teacher C; Position: 12 - 12; 5/19/2020 17:09; Weight score: 0]

4.

"BSIE or BS Industrial Education major in Physics."

[Teachers\Teacher D; Position: 20 - 20; 5/19/2020 17:50; Weight score: 0]

5.2. General Perspectives to the Course

1.

"first, I consider this as different, different among other math subjects"

[Teachers\Teacher A; Position: 18 - 18; 5/18/2020 19:07; Weight score: 0]

5.2.1. opportunity for teachers to shift method of teaching

1.

"In my part, I really wanted to change the approach, the traditional method which is more on discussion"

[Teachers\Teacher D; Position: 32 - 32; 5/19/2020 18:20; Weight score: 0]

5.2.2. creates an atmosphere of interaction among students

1.

"here's this students who presents an oral presentation and of course there occurs an interaction and if there are confusions among students, that's the time that I interfere. That's what I do."

[Teachers\Teacher D; Position: 30 - 30; 5/19/2020 18:19; Weight score: 0]

5.2.3. caters to various roles of students in the classroom

1.

"f the students presents a role playing, what will the others do as a reaction? Are they just an audience? Or just a listener? There's this students who presents an oral presentation and of course there occurs an interaction and if there are confusions among students, that's the time that I interfere. That's what I do."

[Teachers\Teacher D; Position: 30 - 30; 5/19/2020 18:18; Weight score: 0]

5.2.3.1. reactors

1.

"here's this students who presents an oral presentation and of course there occurs an interaction and if there are confusions among students, that's the time that I interfere. That's what I do."

[Teachers \ Teacher D; Position: 30 - 30; 5/19/2020 18:19; Weight score: 0]

5.2.3.2. listener

1.

"Or just a listener?"

[Teachers \ Teacher D; Position: 30 - 30; 5/19/2020 18:18; Weight score: 0]

5.2.3.3. audience

1.

"Are they just an audience?"

[Teachers \ Teacher D; Position: 30 - 30; 5/19/2020 18:18; Weight score: 0]

5.2.4. students are allowed to explore

1.

"It means that it is more on exploration by the students. They have to explore of how they are going to present it to the class."

[Teachers \ Teacher D; Position: 30 - 30; 5/19/2020 18:15; Weight score: 0]

2.

"I let my students explore."

[Teachers \ Teacher D; Position: 34 - 34; 5/19/2020 18:23; Weight score: 0]

5.2.5. encourages students creativity

1.

"I told them that I'll give them leeway, do whatever you want to present. When they presented it, there was role playing, composed a song, or even oral presentation, blogging and documentary. It was good, and I have their videos."

[Teachers \ Teacher D; Position: 28 - 28; 5/19/2020 18:13; Weight score: 0]

2.

"I gave them the concept and they can do whatever they want to present. I thought that role play can only be applied in other subjects"

[Teachers \ Teacher D; Position: 34 - 34; 5/19/2020 18:25; Weight score: 0]

5.2.6. combination of the different areas of math

1.

"like a combination of different areas of Mathematics, a little of Algebra, little of Statistics, little of Calculus."

[Teachers \ Teacher D; Position: 26 - 26; 5/19/2020 18:08; Weight score: 0]

5.2.7. Not important

1.

"It is not important anymore, it should be learned and known by the students already, so if they enter college, the learner has already the knowledge about the mathematicians and the lessons. I used to give the lessons as a reporting activity and as the facilitator of learning, I summarize the lesson and add some information regarding the topic and link it to the importance and usefulness to their program."

[Teachers \ Teacher B; Position: 30 - 30; 5/19/2020 16:58; Weight score: 0]

5.2.8. Description on Maths

5.2.8.1. Mathematics as language

1.

"Because it helps the students understand how to translate patterns or use language into different areas. I can say that mathematics uses languages in everything."

[Teachers \ Teacher C; Position: 19 - 19; 5/19/2020 17:11; Weight score: 0]

2.

"Basically language, for instance, you cannot give a complete sentence without a complete idea. For example, in the expression 3+4, if you will not indicate or put the equal sign it will remain as an expression, but if you will complete the language like 3+1=4, it will give a complete equation or taught."

[Teachers \ Teacher C; Position: 21 - 21; 5/19/2020 17:12; Weight score: 0]

5.2.8.2. Application of real world problems

1.

"because it has an application to the real world, and it's not more on equations."

[Teachers \ Teacher A; Position: 32 - 32; 5/18/2020 19:47; Weight score: 0]

2.

"Yes it is used in different fields because from the moment we wake up, we need to have self-discipline and time management, on what time should we get up from bed for us to start our day."

[Teachers \ Teacher C; Position: 35 - 35; 5/19/2020 17:18; Weight score: 0]

5.2.8.2.1. problem solving

1.

"My experience in teaching that topic? That's also one of my problem, when I come to that topic "kuan", because students have limited knowledge when it comes to problem solving, they really don't exert effort to solve the problem, they only follow what is given to them but when changed they cannot answer anymore"

[Teachers \ Teacher A; Position: 38 - 38; 5/18/2020 19:52; Weight score: 0]

2.

"work problem"

[Teachers \ Teacher A; Position: 42 - 42; 5/18/2020 19:53; Weight score: 0]

3.

"rate problem"

[Teachers \ Teacher A; Position: 42 - 42; 5/18/2020 19:53; Weight score: 0]

4.

"time problems."

[Teachers \ Teacher A; Position: 42 - 42; 5/18/2020 19:53; Weight score: 0]

5.2.8.2.2. investment and finance

1.

"Then the investments they will be able to know about simple interest and how it is in the bank."

[Teachers \ Teacher A; Position: 34 - 34; 5/18/2020 19:49; Weight score: 0]

5.2.8.2.3. understadning data in statistics

1.

"statistics,"

[Teachers\Teacher A; Position: 34 - 34; 5/18/2020 19:49; Weight score: 0]

5.2.8.2.4. maths in the environment

1.

"to the environment then the problem solving base on real life situation"

[Teachers\Teacher A; Position: 34 - 34; 5/18/2020 19:48; Weight score: 0]

2.

"When they wake up in the morning they take a bath and they do it every morning just like what we follow, one example also of the pattern is when taking examination, they've gone through "kuan" iq test. "Kuan" also the pattern of our environment, some say we have everyday "kuan" like that."

[Teachers\Teacher A; Position: 36 - 36; 5/18/2020 19:50; Weight score: 0]

3.

". I gave them the first topic which is nature of Mathematics which includes Fibonacci, patterns of nature"

[Teachers\Teacher D; Position: 28 - 28; 5/19/2020 18:11; Weight score: 0]

5.2.8.2.5. finding patterns

1.

"like for example the topic patterns,"

[Teachers\Teacher A; Position: 34 - 34; 5/18/2020 19:48; Weight score: 0]

2.

"Like for example their daily routine,"

[Teachers\Teacher A; Position: 36 - 36; 5/18/2020 19:50; Weight score: 0]

3.

"When they wake up in the morning they take a bath and they do it every morning just like what we follow, one example also of the pattern is when taking examination, they've gone through "kuan" iq test. "Kuan" also the pattern of our environment, some say we have everyday "kuan" like that."

[Teachers \ Teacher A; Position: 36 - 36; 5/18/2020 19:50; Weight score: 0]

4.

"Because it helps the students understand how to translate patterns"

[Teachers \ Teacher C; Position: 19 - 19; 5/19/2020 17:12; Weight score: 0]

5.

". I gave them the first topic which is nature of Mathematics which includes Fibonacci, patterns of nature"

[Teachers \ Teacher D; Position: 28 - 28; 5/19/2020 18:11; Weight score: 0]

5.2.8.3. Math in modern world is not heavy

1.

"Because it's for the student to understand the topics unlike other math subjects, right? For example, in algebra it's hard for them to "kwan", I am also handling algebra and I can compare that students understand more the topics in mathematics in the modern world because the topics are not that heavy unlike any other math subjects, that is just how I see it."

[Teachers \ Teacher A; Position: 30 - 30; 5/18/2020 19:28; Weight score: 0]

5.2.8.4. students are able to showcase their Knwoedge trough arts

1.

"I am happy because it showcases their artistry because you know they are not artist but they give such good outputs specifically their designs."

[Teachers \ Teacher A; Position: 28 - 28; 5/18/2020 19:27; Weight score: 0]

5.2.8.5. Math is not all about numbers

1.

"because for us we all know that math is just all about numbers."

[Teachers \ Teacher A; Position: 20 - 20; 5/18/2020 19:10; Weight score: 0]

2.

"“aahhh an math ngayan diri la all about numbers”"

[Teachers \ Teacher A; Position: 22 - 22; 5/18/2020 19:12; Weight score: 0]

5.2.9. lays foundtion or history

1.

"Because it lays the foundation or history of some lessons which the child can already comprehend"

[Teachers \ Teacher B; Position: 30 - 30; 5/19/2020 16:55; Weight score: 0]

5.2.10. It does not need critical thinking.

1.

"It does not need critical thinking."

[Teachers \ Teacher B; Position: 26 - 26; 5/19/2020 16:51; Weight score: 0]

5.2.11. Redundant with other math subjescts

1.

"Tax, it is already taught, sets, ordered pairs. Redundancy of lessons is observed because it is already under algebra lessons"

[Teachers \ Teacher B; Position: 24 - 24; 5/19/2020 16:47; Weight score: 0]

2.

"The lesson about subsets are already under the algebra topic"

[Teachers \ Teacher B; Position: 24 - 24; 5/19/2020 16:48; Weight score: 0]

5.2.12. Basic

1.

"Because it is basic,"

[Teachers \ Teacher B; Position: 20 - 20; 5/19/2020 16:45; Weight score: 0]

2.

"the lessons are simple and basic."

[Teachers \ Teacher B; Position: 26 - 26; 5/19/2020 16:51; Weight score: 0]

3.

"because it teaches the basic such as the Fibonacci, the different patterns that can connect into a mathematical language."

[Teachers \ Teacher C; Position: 17 - 17; 5/19/2020 17:10; Weight score: 0]

5.2.12.1. principles

1.

"mostly the lessons of the subject are the principles of the mathematician which should be taught in high school."

[Teachers \ Teacher B; Position: 20 - 20; 5/19/2020 16:46; Weight score: 0]

2.

"the lessons taught are just principles made and proposed by mathematicians"

[Teachers \ Teacher B; Position: 22 - 22; 5/19/2020 16:46; Weight score: 0]

5.2.12.2. no computation

1.

"no computations"

[Teachers \ Teacher B; Position: 22 - 22; 5/19/2020 16:47; Weight score: 0]

5.2.13. should have been taught in senior highschool

1.

"The subject is advantageous for the senior high, not for the college especially for the first year engineering students."

[Teachers \ Teacher B; Position: 18 - 18; 5/19/2020 16:44; Weight score: 0]

2.

"mostly the lessons of the subject are the principles of the mathematician which should be taught in high school."

[Teachers \ Teacher B; Position: 20 - 20; 5/19/2020 16:46; Weight score: 0]

3.

"It should be taught in high school since principles are taught at that level,"

[Teachers \ Teacher B; Position: 24 - 24; 5/19/2020 16:47; Weight score: 0]

4.

"Fibonacci sequence was already found and used in our exams back then-- - the NCAE, the number sequencing following an order and pattern was

already present in our exams during our time. It should be really taught in high school"

[Teachers \ Teacher B; Position: 26 - 26; 5/19/2020 16:50; Weight score: 0]

5.

"It should really just be taught in high school"

[Teachers \ Teacher B; Position: 44 - 44; 5/19/2020 17:07; Weight score: 0]

5.2.14. not appropriate for first year enginering students

5.2.15. significance of math

1.

"how math is really significant"

[Teachers \ Teacher A; Position: 18 - 18; 5/18/2020 19:08; Weight score: 0]

5.2.16. Different from other course

1.

"first, I consider this as different, different among other math subjects"

[Teachers \ Teacher A; Position: 18 - 18; 5/18/2020 19:07; Weight score: 0]

2.

"I just realized that this subject was a good experience for it is different."

[Teachers \ Teacher D; Position: 28 - 28; 5/19/2020 18:13; Weight score: 0]

5.2.17. importance of math to life

1.

"first chapter it introduced the importance of math subject in our life"

[Teachers \ Teacher A; Position: 18 - 18; 5/18/2020 19:08; Weight score: 0]

5.3. Reported effects to students

1.

"students are not having difficulties understanding the topics"

[Teachers \ Teacher A; Position: 18 - 18; 5/18/2020 19:09; Weight score: 0]

5.3.1. fun math atmosphere

1.

"as OBE curriculum which is very interesting and would give a new experience to the students. As a result of the strategy that I employed, my students had fun and enjoy it and made a lot of outputs."

[Teachers \ Teacher D; Position: 32 - 32; 5/19/2020 18:21; Weight score: 0]

5.3.2. Increased efficacy

1.

"Even if their answers are correct or not, one attitude that is being developed is the confidence of the learner."

[Teachers \ Teacher C; Position: 55 - 55; 5/19/2020 17:31; Weight score: 0]

5.3.3. overall positive perfromance

1.

"I can observe it from their performance, they understand well that activities are one of their performance task required in the subject."

[Teachers \ Teacher C; Position: 51 - 51; 5/19/2020 17:30; Weight score: 0]

5.3.4. more than 75% of the students perfrom "Goog" in their quizzes

1.

"Base on the result of the output example on the quizzes, and there are some that are not that good almost 75% or 80% of my class."

[Teachers \ Teacher A; Position: 24 - 24; 5/18/2020 19:14; Weight score: 0]

5.3.5. positive reactions to projects

1.

"Project like for example in the midterm I let them make hmmm an art,art like mandala and appreciation, so by that they're enjoying, they was like "Sir kaupay man san sudsini sudsana""

[Teachers \ Teacher A; Position: 26 - 26; 5/18/2020 19:25; Weight score: 0]

5.3.6. draws the interest of the students

1.

"I have observed that the learners had the interest to learn more or to research more about the specific topic or task I have given them because of peer mentoring activity."

[Teachers \ Teacher C; Position: 49 - 49; 5/19/2020 17:25; Weight score: 0]

5.3.6.1. to reasearch more

1.

"I have observed that the learners had the interest to learn more or to research more about the specific topic or task I have given them because of peer mentoring activity."

[Teachers \ Teacher C; Position: 49 - 49; 5/19/2020 17:25; Weight score: 0]

5.3.6.2. to learn

1.

"I have observed that the learners had the interest to learn more or to research more about the specific topic or task I have given them because of peer mentoring activity."

[Teachers \ Teacher C; Position: 49 - 49; 5/19/2020 17:25; Weight score: 0]

5.3.7. allows students to refelct ontheir experience

1.

"One concrete example of function and relation is, I remember when my students said a person is allowed to have many relationship or boyfriends and girlfriends."

[Teachers \ Teacher C; Position: 41 - 41; 5/19/2020 17:21; Weight score: 0]

2.

"We, teachers, taught for so many years and we already know our students from the fist meeting of the class. I really gave them a chance to speak because through asking question like what is Mathematics, how it is applied to the daily experiences,"

[Teachers \ Teacher D; Position: 40 - 40; 5/19/2020 18:30; Weight score: 0]

5.3.8. with oppurtunitis for impprovement

1.

"I observed improvement, the students have improved their output since they know that I will not accept their outputs. Even though I am new to

the subject they cannot deceive me as the lessons are still the same and the topics are not new to me."

[Teachers \ Teacher B; Position: 36 - 36; 5/19/2020 17:02; Weight score: 0]

5.3.9. awakens the students to the real beauty of math

1.

"awakens the students to the real beauty of math"

[Teachers \ Teacher A; Position: 20 - 20; 5/18/2020 19:10; Weight score: 0]

5.3.9.1. Removes the stigma to math being difficult

1.

"They're not close minded just like at first when they heard about mathematics they're close minded that it is a difficult subject"

[Teachers \ Teacher A; Position: 22 - 22; 5/18/2020 19:12; Weight score: 0]

5.3.10. subject tackles light topics only.

1.

"subject tackles light topics only."

[Teachers \ Teacher A; Position: 18 - 18; 5/18/2020 19:09; Weight score: 0]

5.3.11. students are not having difficulties understanding the topics

1.

"students are not having difficulties understanding the topics"

[Teachers \ Teacher A; Position: 18 - 18; 5/18/2020 19:09; Weight score: 0]

5.4. Teachers description to teaching experience

5.4.1. requires consistent direction

1.

"As teacher, we should not ignore it though we had given them an allowance for their output, and when the presentation comes, still unready. And of course, they will ask for extension which is not right. What will be the output of your class, then? Since we wanted to have an exploration which means that we will not teach for the mean time, we will not promptly conclude. As a teacher, we will just facilitate, summarize based on what their outputs are. From their own perspectives of how they

are going to present it- dance, song, role play or even lecture discussion- afterwards, you re going to summarize or consolidate. 1 topic for 5 groups, so probably, a variety of result is expected. Since, they are not able to present because of being not ready, you will give another chance, have brainstorming. As a teacher, you will be the one to present the first lesson. Instead of having an inductive method- student first then the teacher- it will be a deductive method- teacher first then the student. Once you had discussed the overview, the turn will be back to the students. The next time around, we have to be ready."

[Teachers \ Teacher D; Position: 46 - 46; 5/19/2020 18:35; Weight score: 0]

5.4.2. Oppurtunity for teachers to focus more on low performing studen

1.

"Students who are smart, even you will instruct them to do role plays, they will.really function without your further explanations. On the other hand, students who are weak and are slow learners, you really have to feed them-" class, you will perform a role playing", "maam, what kind of role playing?", jus like that. Seems like they have no idea at all, you will really have to give an example. You will really guide them of what to perform."

[Teachers \ Teacher D; Position: 42 - 42; 5/19/2020 18:34; Weight score: 0]

5.4.3. providing students a chance to learn

1.

"One student presented a PowerPoint and perform like a teacher. He did not even elaborate it. The time was wasted and once you force them to do this, you will deprive their rights, instead give a chance"

[Teachers \ Teacher D; Position: 40 - 40; 5/19/2020 18:32; Weight score: 0]

5.4.4. providing students an oppurtunity to speak

1.

"We, teachers, taught for so many years and we already know our students from the fist meeting of the class. I really gave them a chance to speak because through asking question like what is Mathematics, how it is applied to the daily experiences,"

[Teachers \ Teacher D; Position: 40 - 40; 5/19/2020 18:31; Weight score: 0]

5.4.5. accomodates a lot of activities for students

1.

"In the subject Mathematics in the Modern World, you can do lots of activities."

[Teachers \ Teacher D; Position: 34 - 34; 5/19/2020 18:26; Weight score: 0]

5.4.6. created a venue for discriminating students performance

1.

"Based on my 3 semester of teaching Mathematics in the Modern World, those who were smart have an excellent outputs."

[Teachers \ Teacher D; Position: 32 - 32; 5/19/2020 18:23; Weight score: 0]

2.

"One student presented a PowerPoint and perform like a teacher. He did not even elaborate it. The time was wasted and once you force them to do this, you will deprive their rights, instead give a chance. But fast learners students, they have a lot of ideas and can have on the spot."

[Teachers \ Teacher D; Position: 40 - 40; 5/19/2020 18:32; Weight score: 0]

3.

"Usually, it was an assistance to the highest level. When they perform, there has a variety of it. And during their performance, seemingly the expectation you wanted to meet has been redirected. Honestly, other performers was not ready even though that you had given them a time as part of your assistance. Others, even though in impromptu, has props, of course, for they are smart and fast learners. Weak and slow ones, when they presented still unorganized, other still ask to just video it than perform it live for they wanted it to be perfect because they knew that it will be their grades. What we really wanted to do is to pass them."

[Teachers \ Teacher D; Position: 44 - 44; 5/19/2020 18:34; Weight score: 0]

5.4.7. performance based

1.

"performance output"

[Teachers \ Teacher D; Position: 28 - 28; 5/19/2020 18:10; Weight score: 0]

2.

"You can do anything you want as an output performance"

[Teachers \ Teacher D; Position: 28 - 28; 5/19/2020 18:14; Weight score: 0]

5.4.8. application centered

1.

"application"

[Teachers \ Teacher D; Position: 28 - 28; 5/19/2020 18:09; Weight score: 0]

5.4.9. a good experience

1.

""good experience"."

[Teachers \ Teacher D; Position: 27 - 27; 5/19/2020 18:08; Weight score: 0]

5.4.10. Beneficial

1.

"The impact to me is very beneficial"

[Teachers \ Teacher C; Position: 31 - 31; 5/19/2020 17:15; Weight score: 0]

5.4.11. useful

1.

"It has a great benefit to me as I can use it as a basis for my future research studies."

[Teachers \ Teacher C; Position: 29 - 29; 5/19/2020 17:14; Weight score: 0]

2.

"useful to me as an instructor of this university we require at least one research study for every year."

[Teachers \ Teacher C; Position: 31 - 31; 5/19/2020 17:15; Weight score: 0]

5.4.12. Integrative

1.

"Mathematics is complicated, because in terms of foundation we need mathematics, so expression can be integrated into different fields."

[Teachers \ Teacher C; Position: 23 - 23; 5/19/2020 17:13; Weight score: 0]

2.

"Complicated because in Mathematics all subjects are integrated most especially in the engineering fields."

[Teachers \ Teacher C; Position: 25 - 25; 5/19/2020 17:13; Weight score: 0]

3.

"One of the lesson I taught to them is the types of research, the qualitative and quantitative research which is very useful for them to utilize in their future studies."

[Teachers \ Teacher C; Position: 27 - 27; 5/19/2020 17:13; Weight score: 0]

4.

"Mathematics in the Modern World can be used in different fields."

[Teachers \ Teacher C; Position: 33 - 33; 5/19/2020 17:18; Weight score: 0]

5.4.13. Enjoyable

1.

"I enjoyed teaching Mathematics in the Modern World"

[Teachers \ Teacher C; Position: 17 - 17; 5/19/2020 17:10; Weight score: 0]

5.4.14. contrary to the goals of teaching math

1.

"because we believe what's important is for the learner to pass the board exams in mathematics"

[Teachers \ Teacher B; Position: 28 - 28; 5/19/2020 16:55; Weight score: 0]

5.4.15. dont have bearing

1.

"It does not have any bearing,"

[Teachers \ Teacher B; Position: 28 - 28; 5/19/2020 16:54; Weight score: 0]

5.4.16. no significant effect to the teacher

1.

"I cannot see any significant effects to me"

[Teachers \ Teacher B; Position: 28 - 28; 5/19/2020 16:54; Weight score: 0]

5.4.17. just informative

1.

"just informative"

[Teachers \ Teacher B; Position: 28 - 28; 5/19/2020 16:53; Weight score: 0]

5.4.18. a matter of compliance

1.

"I teach it because it is a required subject and also books are already provided and required, and the content are already found in the book"

[Teachers \ Teacher B; Position: 26 - 26; 5/19/2020 16:50; Weight score: 0]

5.4.19. fulfilling

1.

"Am I doing something?"

[Teachers \ Teacher A; Position: 66 - 66; 5/18/2020 20:02; Weight score: 0]

2.

"It has a positive impact to me as it indicates that the goals you want them to achieve were met."

[Teachers \ Teacher B; Position: 38 - 38; 5/19/2020 17:03; Weight score: 0]

3.

"That is one of the achievement of the teacher."

[Teachers \ Teacher C; Position: 57 - 57; 5/19/2020 17:32; Weight score: 0]

5.4.20. reflective to students performance

1.

"It feels like there's a lot missing even though you already give your all to them but for the students it is still not working."

[Teachers \ Teacher A; Position: 48 - 48; 5/18/2020 19:56; Weight score: 0]

2.

"like I've done this before then next time it will be different, I just keep on giving them problem sets up to that point that I can see it okay."

[Teachers \ Teacher A; Position: 58 - 58; 5/18/2020 20:00; Weight score: 0]

3.

"I summarize the lesson and add some information regarding the topic and link it to the importance and usefulness to their program."

[Teachers \ Teacher B; Position: 30 - 30; 5/19/2020 16:59; Weight score: 0]

4.

"Achievement in such a way, where students can use it for their further studies."

[Teachers \ Teacher C; Position: 59 - 59; 5/19/2020 17:32; Weight score: 0]

5.

"there were a different programs so we will expect that there were a different kinds of students. So it is not valid that what you had applied in the other section will be applied, as well, in the other section. I did not do such. I have this students who are slow learners and I gave them the same activity to what the fast learners did. So, you can conclude that that a fast learner is a good student, they can explore beyond the expectations. And the slower ones, of course, you will expect less."

[Teachers \ Teacher D; Position: 38 - 38; 5/19/2020 18:29; Weight score: 0]

6.

"I already classified my students of what strategy to use every class"

[Teachers \ Teacher D; Position: 40 - 40; 5/19/2020 18:31; Weight score: 0]

7.

"In engineering classes, you can observe that in the first meeting of the class, they were competitive and has a lot of ideas. Those who were slow learners, they were silent. And I assist them, I did not shock them although I tried to let them have role playing or whatever they want, they did nothing and it seems like it has been useless"

[Teachers \ Teacher D; Position: 40 - 40; 5/19/2020 18:31; Weight score: 0]

5.4.21. facilitative

1.

"It's good for me, but although for us instructors we have to be limited in teaching because our role is just to facilitate because it's hard to leave your student not catching up"

[Teachers \ Teacher A; Position: 44 - 44; 5/18/2020 19:54; Weight score: 0]

2.

"facilitator of learning,"

[Teachers \ Teacher B; Position: 30 - 30; 5/19/2020 16:59; Weight score: 0]

3.

"As an instructor, I am the facilitator of the learners towards their learning of the subject"

[Teachers \ Teacher C; Position: 45 - 45; 5/19/2020 17:22; Weight score: 0]

4.

"being a facilitator as a teacher"

[Teachers \ Teacher D; Position: 28 - 28; 5/19/2020 18:10; Weight score: 0]

5.

"Teacher as facilitator will just facilitate and let your students explore of how they will present the topic. If for an instance, the topic given was more on discussion, it gives them dullness and they really are not interested in."

[Teachers \ Teacher D; Position: 28 - 28; 5/19/2020 18:14; Weight score: 0]

6.

"As OBE, the teacher's role is a facilitator"

[Teachers \ Teacher D; Position: 30 - 30; 5/19/2020 18:14; Weight score: 0]

7.

"Some teachers gave reports to their students but I did not do such for it will be boring for them. If there's a reporting, then, you will just be there listen it. It depends upon the two of you if you will but in if necessary but I realized that that I only interrupt the reporting. So what I did was I take notes and afterwards, that's the time to clarify things. That's the role of the teacher, as facilitator. But in role plays, you should not promptly intervene, so what I did was to finish the presentation first and summarize the topic an relate it to their presentation."

[Teachers \ Teacher D; Position: 50 - 50; 5/19/2020 18:37; Weight score: 0]

5.4.21.1. promotes calls for clarification

1.

"Sometimes when I teach as teacher, you will really observe whether your students are learning or not. If for an instance that there's a student that cannot understand, you really have to clarrify it, clear it out. They should not left the room having a question on their minds. As much as possible, if there's a thing that has to be clarified, it should be clear out. Don't mind the smart ones, matter the weak and slow learners."

[Teachers \ Teacher D; Position: 52 - 52; 5/19/2020 18:38; Weight score: 0]

5.4.21.2. with respect

1.

"If there's a reporting, then, you will just be there listen it. It depends upon the two of you if you will but in if necessary but I realized that that I only interrupt the reporting. So what I did was I take notes and afterwards, that's the time to clarify things. That's the role of the teacher, as facilitator. But in role plays, you should not promptly intervene, so what I did was to finish the presentation first and summarize the topic an relate it to their presentation."

[Teachers \ Teacher D; Position: 50 - 50; 5/19/2020 18:38; Weight score: 0]

5.4.21.3. consolidation of ideas

1.

"You give a topic, of course. And you will divide your class into groups, you can have up to 5 depending on the number of the students. In every group, the same topic will be presented and definitely variety of output will be the result. There's an exact idea related to the topic and there's an average, seems like a level from 1-5. So, what you will do is to consolidate their ideas, summarize of what you are expecting about this topic- what is the conclusion of the topic, what you wanted to come up, what is the point of this topic. But, of course, you should not point out that they are wrong, instead, you give them the right point."

[Teachers \ Teacher D; Position: 48 - 48; 5/19/2020 18:37; Weight score: 0]

5.4.22. teaching math becomes easy

1.

"in that sense it is easy for me to teach them because for them math is getting easy."

[Teachers \ Teacher A; Position: 22 - 22; 5/18/2020 19:13; Weight score: 0]

5.5. Leverage for Intervention

5.5.1. incorporating supplemental readings

1.

"I let them repeat their report and let them research further about the topic."

[Teachers \ Teacher B; Position: 34 - 34; 5/19/2020 17:01; Weight score: 0]

5.5.2. providing misconception alerts

1.

"It depends upon the learner, some learners are good at reporting as they supplement their reports with materials, for others, their reports lack substance. What I do is to impart something in order for them to get or learn what they need to learn from the subject which will be useful for their program."

[Teachers \ Teacher B; Position: 32 - 32; 5/19/2020 17:01; Weight score: 0]

5.5.3. simpiflying the problems

1.

"I make the problems simple, although for us it's already easy but for them I make it more easier and I give problems which we already solved and I just change the data and check if they're studying or not, like I just change x to y."

[Teachers \ Teacher A; Position: 50 - 50; 5/18/2020 19:58; Weight score: 0]

2.

"Others students encounter problem which I let them expound their learnings."

[Teachers \ Teacher B; Position: 40 - 40; 5/19/2020 17:04; Weight score: 0]

5.5.4. varying options of problems

1.

"I give them a lot of different kinds of, kinds of problem solving,"

[Teachers \ Teacher A; Position: 40 - 40; 5/18/2020 19:53; Weight score: 0]

2.

"like example when this happens you do this, when the problem is like this you do this, I give them different kinds of problem sets to help them."

[Teachers \ Teacher A; Position: 40 - 40; 5/18/2020 19:53; Weight score: 0]

5.6. Areas for improvement

5.6.1. individual differences

1.

"Actually, individual differences is observable in every section."

[Teachers \ Teacher D; Position: 38 - 38; 5/19/2020 18:28; Weight score: 0]

5.6.2. Teachers Pre-/In-Service Training

1.

"teachers who will handle the subject must be trained"

[Teachers \ Teacher B; Position: 44 - 44; 5/19/2020 17:07; Weight score: 0]

2.

"The problem is, some teachers in high school despite being considered as Mathematics majors they are not well-equipped in teaching the subject"

[Teachers \ Teacher B; Position: 44 - 44; 5/19/2020 17:08; Weight score: 0]

5.6.2.1. content knowledge

1.

"some teachers do not have the ample knowledge and expertise regarding the subject"

[Teachers \ Teacher B; Position: 44 - 44; 5/19/2020 17:08; Weight score: 0]

5.6.3. Admission

1.

"In reality, you can observe the disparity of the students who are enrolled in the college, out of 40 students, I can say only 10 deserves to be engineers."

[Teachers \ Teacher B; Position: 42 - 42; 5/19/2020 17:06; Weight score: 0]

5.6.4. application of statistics

1.

"Others haven't learned or studied, which concerns more on statistics."

[Teachers \ Teacher B; Position: 40 - 40; 5/19/2020 17:04; Weight score: 0]

5.6.5. varying entry level knowledge

1.

"maybe their foundation with math subject is not good."

[Teachers \ Teacher A; Position: 54 - 54; 5/18/2020 20:00; Weight score: 0]

2.

"The problem rises as other students are from STEM strands and some are non-stem strands, and as they enter college, they are merged together which results for others really having difficulty in catching up with the lessons. They need to upgrade and I told them that they are the ones who are responsible of their own learning."

[Teachers \ Teacher B; Position: 42 - 42; 5/19/2020 17:05; Weight score: 0]

5.6.5.1. varying perfromance of students coming from different strand

1.

"The problem rises as other students are from STEM strands and some are non-stem strands, and as they enter college, they are merged together which results for others really having difficulty in catching up with the lessons. They need to upgrade and I told them that they are the ones who are responsible of their own learning."

[Teachers \ Teacher B; Position: 42 - 42; 5/19/2020 17:05; Weight score: 0]

5.6.6. difficulty in problem solving

1.

"I am not that type Sir who go through another topic if I don't see my students okay, right? It's difficult that let's just say that only 25% in your class are learning, I want 60% for me to move on to another topic but base on my experience I am really having hard time with problem solving."

[Teachers \ Teacher A; Position: 46 - 46; 5/18/2020 19:55; Weight score: 0]

5.7. Strategies of teaching

5.7.1. doing debate

1.

"It was cache for the students. Through debate, further explanations was produced for it was interactive and I was just listening. Before the debate, I prepared them to establish ideas that will be used against their opponents. It was a great strategy for they teally are the ones who seeks the answers for the questions of their classmates. So, in debate, students find ways among themselves."

[Teachers \ Teacher D; Position: 36 - 36; 5/19/2020 18:28; Weight score: 0]

5.7.2. interactive learning

1.

". It was cache for the students. Through debate, further explanations was produced for it was interactive and I was just listening. Before the debate, I prepared them to establish ideas that will be used against their opponents. It was a great strategy for they teally are the ones who seeks the answers for the questions of their classmates. So, in debate, students find ways among themselves."

[Teachers \ Teacher D; Position: 36 - 36; 5/19/2020 18:27; Weight score: 0]

5.7.3. giving videos

1.

"Actually, I played a video for my students, let them observe without discussion. It was about patterns and lasted for 1 hour"

[Teachers \ Teacher D; Position: 36 - 36; 5/19/2020 18:27; Weight score: 0]

5.7.4. reflective teaching

1.

"I did some explorations. I let my students explore"

[Teachers \ Teacher D; Position: 34 - 34; 5/19/2020 18:24; Weight score: 0]

2.

"I handle lots of sections, usually beginners in the subject. I, myself, do some testings. I do not promptly employ anything, to have lecture method right away. I evaluate of what discussion is good for my students"

[Teachers \ Teacher D; Position: 36 - 36; 5/19/2020 18:26; Weight score: 0]

5.7.5. provide students a leeway

1.

"I told them that I'll give them leeway, do whatever you want to present. When they presented it, there was role playing, composed a song, or even oral presentation, blogging and documentary. It was good, and I have their videos."

[Teachers \ Teacher D; Position: 28 - 28; 5/19/2020 18:12; Weight score: 0]

5.7.6. doing presentations

1.

"Ever topic that I gave, I let them present it. They can do role plays."

[Teachers \ Teacher D; Position: 28 - 28; 5/19/2020 18:11; Weight score: 0]

5.7.6.1. doing role play

1.

"They can't even make a role play and the teacher should not expect something if the students were like that"

[Teachers \ Teacher D; Position: 32 - 32; 5/19/2020 18:22; Weight score: 0]

5.7.6.2. poems

5.7.6.3. dance

1.

"or a dance."

[Teachers \ Teacher D; Position: 32 - 32; 5/19/2020 18:22; Weight score: 0]

5.7.6.4. song

1.

"presented a song"

[Teachers \ Teacher D; Position: 32 - 32; 5/19/2020 18:22; Weight score: 0]

5.7.7. creating reward system

5.7.7.1. foregoing of other course requirements

1.

"Sometimes I don't give them exam I mean projects as their prize. Because there is sometimes one section who is having hard time what did I do is that I let them make problem sets as their project base from the topics we had then going to another class which the learning flow is smooth, they meet my expectations I don't anymore give them projects as their prize."

[Teachers \ Teacher A; Position: 66 - 66; 5/18/2020 20:04; Weight score: 0]

5.7.8. giving boardworks

1.

"One is the board work."

[Teachers \ Teacher C; Position: 53 - 53; 5/19/2020 17:31; Weight score: 0]

5.7.9. projects

1.

"Project like for example in the midterm I let them make hmmm an art,art like mandala and appreciation, so by that they're enjoying, they was like "Sir kaupay man san sudsini sudsana""

[Teachers \ Teacher A; Position: 26 - 26; 5/19/2020 17:30; Weight score: 0]

5.7.10. Reporting

1.

"I used to give the lessons as a reporting activity and as the facilitator of learning,"

[Teachers \ Teacher B; Position: 30 - 30; 5/19/2020 16:59; Weight score: 0]

5.7.11. Short discussion

1.

"First I give them a short discussion,"

[Teachers \ Teacher C; Position: 47 - 47; 5/19/2020 17:23; Weight score: 0]

2.

"Afterwards, I raised a question-what was the video all about, they made a conclusion and on the other section, I did some debate and the topic was "Is mathematics invented or discovered?""

[Teachers \ Teacher D; Position: 36 - 36; 5/19/2020 18:27; Weight score: 0]

5.7.12. Giving activities

1.

"then I give them activities where there is application of their different ideas"

[Teachers \ Teacher C; Position: 47 - 47; 5/19/2020 17:23; Weight score: 0]

5.7.12.1. peer mentoring

1.

"I have observed that the learners had the interest to learn more or to research more about the specific topic or task I have given them because of peer mentoring activity."

[Teachers \ Teacher C; Position: 49 - 49; 5/19/2020 17:26; Weight score: 0]

5.7.12.2. application

1.

"activities where there is application of their different ideas"

[Teachers \ Teacher C; Position: 47 - 47; 5/19/2020 17:24; Weight score: 0]

6. Students Nuances

6.1. general view towards math subjects

1.

"Do you find the subject math interesting or not?
RESPONDENT: I think, I'm in the middle. In some ways, I think it is not interesting because it is not the subject that I am into, I am into the subject science. But it is also interesting because I can reflect to myself that if I can do better in this math subject it'll help me more gain knowledge and not only by those things I like. And I think because of this subject it motivates me more to challenge myself into things I've never like before."

[Students_CCIS\CD_A1; Position: 53 - 54; 5/22/2020 00:33; Weight score: 0]

2.

"I did not hate math because it helps me a lot and I can use math daily when it comes to money."

[Students_CCIS\CD_J; Position: 81 - 81; 5/22/2020 01:37; Weight score: 0]

3.

"R: If I compare it real life situations, every problem has solutions."

[Students_CCIS\CD_J; Position: 83 - 83; 5/22/2020 01:38; Weight score: 0]

6.1.1. Old perception about math

1.

"Respondent: Probably the idea that idea that Mathematics is difficult and irrelevant to my course.
Interviewer: Why do you say that it was difficult and irrelevant to your chosen course?
Respondent: Because back then whenever I see numbers on the board, I always closed my door and try to give it a shot and that's probably why the subject didn't also like me back. For your second question, I thought that it was irrelevant because I am pursuing BSEd-English and believed to the idea that why study that course if it's not even connected to my major. But, studying Mathematics in the Modern World made me think that once we try to love the subject course, it will love us back."

[Students_COED\CA_P; Position: 36 - 38; 5/21/2020 22:19; Weight score: 0]

6.2. Realization

1.

"In general, it was fun. It made me realize that Mathematics is not as complicated as what all of us think. We have to erase the idea that it's useless to our courses because Mathematics is an essential thing that we can use in our everyday lives. The subject course is a variation of complex to light topics, vice-versa, that will test you mentally and even emotionally. One word to describe the whole experience is "worthwhile.""

[Students_COED\CA_P; Position: 70 - 70; 5/21/2020 22:34; Weight score: 0]

2.

"Because you see, when people told us that math is math we have this fear that is already difficult. But once we tried to learn math and understand it's problem we will be able to find the answer and solve the problem. It is not difficult once you study and it is not easy once you never tried to study. You never know once you never learned."

[Students_COM\CB_G; Position: 23 - 23; 5/21/2020 23:00; Weight score: 0]

3.

"How do you feel after you completed this subject "Mathematics in the Modern World"?
R: I feel relieved now.
I: How do you feel relieved after finishing the subject?
R: I feel relieved because I was able to finish the subject and get a good grades and I have more time for myself."

[Students_COM\CB_L; Position: 62 - 65; 5/21/2020 23:11; Weight score: 0]

4.

"It is difficult to study the course subject. However, it becomes easy when you focus on and have the interest in learning it."

[Students_CCIS\CD_A2; Position: 74 - 74; 5/22/2020 00:57; Weight score: 0]

5.

"In conclusion, math is not that difficult and it helps me in many ways and it gives me a lot of knowledge that I can apply in real life situation. Don't think that math is hard because it is only our self who will experience difficulties just like in life when we think that we are in a critical situation but we don't know that someone has the worst experiences."

[Students_CCIS\CD_J; Position: 85 - 85; 5/22/2020 01:38; Weight score: 0]

6.

"I: What have you learned from having a grade of 3.00 in Mathematics in the Modern World?
R: I should not skip classes so that I will not missed any lessons. And I should listen more attentively to the teacher in his discussion and learn to love Math.
I: Okay that ends our interview. Thank you Mr. Mercader for your time!"

[Students_CAS\CE_M; Position: 54 - 56; 5/22/2020 01:16; Weight score: 0]

7.

"all programs are difficult but if you love that program then there is no difficulties with it." I learned from that because when you love what you are doing then it is easy for you, that love make its lighter. However I balance my time by studying all the subjects and making the projects. I need to prepare so I need to study both major and minor subjects because there are times that my instructor give us unannounced quiz."

[Students_CAS\CE_V; Position: 51 - 51; 5/22/2020 01:46; Weight score: 0]

8.

"But as time pass by I realized that math is important, everywhere we see there is math, in nature, things and our surroundings. Math is very useful in our everyday lives."

[Students_CAS\CE_V; Position: 65 - 65; 5/22/2020 01:51; Weight score: 0]

6.2.1. Students resolution to negative mindset

1.

"Well, as a 21st century learner I will use technology just to surf or search in the internet and watch videos or tutorials so I can understand more and better. I just want to read in advance, take down notes, adopt a positive mental attitude, pay attention and ask questions in class so I can be able to grow my self-esteem, once I have the courage to open up to others. Then, I will set aside first and focus important things in school than reading wattpad and playing mobile legends."

[Students_COED\CA_M; Position: 86 - 86; 5/21/2020 21:58; Weight score: 0]

2.

"Success for me is passing the subject, getting enough grade and gaining more knowledge about the subject even though it's hard and something that I don't like in the first place."

[Students_CCIS\CD_A1; Position: 58 - 58; 5/22/2020 00:34; Weight score: 0]

6.3. Negative Descriptors

6.3.1. no concrete connection to the degree sought

1.

"am an English major and I believe in multi-literacy. We are all capable of learning not just the things that we like or things that we believe we are doing best but also the things that we need to learn. Mathematics in the Modern World, though we cannot see a concrete connection to my course which is English"

[Students_COED\CA_B; Position: 53 - 53; 5/21/2020 21:03; Weight score: 0]

6.3.2. having hard time to comrehend math

1.

"first of all I am not inclined to Mathematics subject, I am more inclined to writing essay etc. second is that I'm having a hard time to apprehend the lessons in Mathematics."

[Students_COED\CA_M; Position: 14 - 14; 5/21/2020 21:11; Weight score: 0]

6.3.3. not easy

1.

"Mathematics in the Modern World is not easy"

[Students_COED\CA_M; Position: 14 - 14; 5/21/2020 21:11; Weight score: 0]

2.

"I cannot say it's difficult because we already have our prior knowledge way back in high school. However, Mathematics in the Modern World is a depth subject"

[Students_CET\CC_A; Position: 16 - 16; 5/21/2020 23:30; Weight score: 0]

3.

"Math is not as easy"

[Students_CCIS\CD_J; Position: 11 - 11; 5/22/2020 01:22; Weight score: 0]

4.

"For me as a student learning Mathematics in the Modern World is not easy because I'm not inclined to a subject Mathematics."

[Students_CAS\CE_V; Position: 17 - 17; 5/22/2020 01:39; Weight score: 0]

6.3.4. bad experience

1.

"I can say that my experience with this subject was really bad and I can't say that it was only me."

[Students_COM\CB_M2; Position: 22 - 22; 5/21/2020 22:49; Weight score: 0]

6.3.5. wanting the class to end

1.

"Because they also want the lesson or the class ended so that is why no one will be going to asks or to clarify"

[Students_CAS\CE_B; Position: 49 - 49; 5/22/2020 01:58; Weight score: 0]

6.3.6. not my favorite

1.

"Math is not my Favorite"

[Students_CAS\CE_B; Position: 23 - 23; 5/22/2020 01:56; Weight score: 0]

6.3.7. blurry

1.

"However, learning the course content was quite blurry that it left me queries about some subject matters."

[Students_CET\CC_R; Position: 19 - 19; 5/21/2020 23:14; Weight score: 0]

6.3.7.1. leads to a lot of questions

1.

"However, learning the course content was quite blurry that it left me queries about some subject matters."

[Students_CET\CC_R; Position: 19 - 19; 5/21/2020 23:15; Weight score: 0]

6.3.8. causes discrimination

1.

"Interviewer: What is the effect of studying Mathematics in the modern World for your daily life as a student?
Respondent: As a student, in order for me to not be able to be discriminate by others like, "You are already a college student, but you didn't know how to solve a problems in Mathematics in the modern world subject"
Interviewer: What is the impact of that discrimination to you in studying the Mathematics in the Modern World?
Respondent: It's really hurt in my side that's why I study Mathematics in Modern World aside from the fact that it's a recommended subject but for me to be able to learn so that others will not say negative things at me. In addition, it serves as my motivation to study."

[Students_COM\CB_M1; Position: 30 - 33; 5/21/2020 22:41; Weight score: 0]

6.3.9. math is not my forte

1.

"I can say that its difficult because aside from the fact that it's not my forte,"

[Students_COM\CB_M1; Position: 15 - 15; 5/21/2020 22:37; Weight score: 0]

2.

"I am trying myself to learn this and I even search on how to do it. Maybe because Math is not my forte and it is really my weakness."

[Students_COM\CB_M2; Position: 20 - 20; 5/21/2020 22:48; Weight score: 0]

3.

"Of course the subject itself, I'm not really inclined to Mathematics, I hate numbers, equations and so on. Most of my classmates also hate math."

[Students_CAS\CE_V; Position: 65 - 65; 5/22/2020 01:51; Weight score: 0]

6.3.10. difficult

1.

"Mathematics in the modern world subject was difficult for me."

[Students_COM\CB_M1; Position: 13 - 13; 5/21/2020 22:36; Weight score: 0]

2.

"difficult"

[Students_CET\CC_R; Position: 20 - 20; 5/21/2020 23:15; Weight score: 0]

3.

"For me, it's difficult"

[Students_CCIS\CD_A2; Position: 12 - 12; 5/22/2020 00:49; Weight score: 0]

4.

"Mathematics in the Modern World is really difficult especially that I am not into numbers. It is difficult in a way that I cannot easily process all the data that our teacher gave to us. Aside from that, Mathematics is difficult because it has so many patterns like the lesson from the beginning are connected until the end."

[Students_CAS\CE_M; Position: 15 - 15; 5/22/2020 01:08; Weight score: 0]

5.

"It is difficult for me because it is Math."

[Students_CAS\CE_V; Position: 79 - 79; 5/22/2020 01:54; Weight score: 0]

6.

"For me Mathematics is more on numbers and problem solving that makes it more difficult for me. Every time I heard a word math one word I can describe it "difficult"."

[Students_CAS\CE_V; Position: 81 - 81; 5/22/2020 01:54; Weight score: 0]

7.

"Problem solving is solving a problem and it is very difficult."

[Students_CAS\CE_V; Position: 85 - 85; 5/22/2020 01:54; Weight score: 0]

8.

"Numbers, small and big numbers makes the Mathematics more difficult."

[Students_CAS\CE_V; Position: 87 - 87; 5/22/2020 01:54; Weight score: 0]

9.

"I find the subject hard because I don't want Mathematics or it is not my type"

[Students_CAS\CE_B; Position: 29 - 29; 5/22/2020 01:56; Weight score: 0]

10.

"For me, Mathematics is the hardest subject and I wish there's no math at all"

[Students_CAS\CE_B; Position: 101 - 101; 5/22/2020 02:03; Weight score: 0]

6.3.10.1. memorization of formulas

1.

"For me, in the part of memorizing the formulas to be apply in solving the problems, due to the fact that i'm weak in terms of memorization."

[Students_COM\CB_M1; Position: 17 - 17; 5/21/2020 22:38; Weight score: 0]

6.3.10.2. hard tosolve problems using formula

1.

"For example, it's hard to solve problems by using different formulas."

[Students_COM\CB_M1; Position: 15 - 15; 5/21/2020 22:37; Weight score: 0]

6.3.10.3. hard to learn

1.

"I don't like it in a way that it's hard to learn"

[Students_COM\CB_M1; Position: 15 - 15; 5/21/2020 22:37; Weight score: 0]

6.3.11. loose interest

1.

"I will definitely lose my interest listening to the discussion of our teacher."

[Students_COED\CA_M; Position: 34 - 34; 5/21/2020 21:24; Weight score: 0]

2.

"Actually I'm doing my best to really understand our lessons and I even review my notes and quizzes. I also tried to answer on my own but I sometimes forgot how to solve it. That's why I get stressed."

[Students_COM\CB_M2; Position: 30 - 30; 5/21/2020 22:50; Weight score: 0]

6.3.11.1. stressful

1.

"Actually I'm doing my best to really understand our lessons and I even review my notes and quizzes. I also tried to answer on my own but I sometimes forgot how to solve it. That's why I get stressed."

[Students_COM\CB_M2; Position: 30 - 30; 5/21/2020 22:50; Weight score: 0]

6.3.12. confusing

1.

"its effect to me is that it will be more confusing,"

[Students_COED\CA_M; Position: 26 - 26; 5/21/2020 21:20; Weight score: 0]

2.

"R: Another reason is that during the discussion of the course I've noticed that our teacher at first is teaching us some of the simple formulas with simple problem-solving then afterwards the teacher assess us on the other thing, particularly by giving us a more difficult problem solving and with that, again, I am getting confused and my mind is forcing me to stop paying attention the lesson."

[Students_COED\CA_M; Position: 50 - 50; 5/21/2020 21:31; Weight score: 0]

3.

"hard to understand"

[Students_COM\CB_M2; Position: 12 - 12; 5/21/2020 22:43; Weight score: 0]

6.3.13. I feel bored

1.

"I can't be able to understand the lesson fully and I'll get bored if that's the case."

[Students_COED\CA_M; Position: 26 - 26; 5/21/2020 21:20; Weight score: 0]

2.

"I feel bored during math classes."

[Students_CCIS\CD_A2; Position: 24 - 24; 5/22/2020 00:50; Weight score: 0]

3.

"I find the subject boring, and I just feel like it."

[Students_CCIS\CD_A2; Position: 34 - 34; 5/22/2020 00:53; Weight score: 0]

4.

"I just get bored during math classes."

[Students_CCIS\CD_A2; Position: 36 - 36; 5/22/2020 00:53; Weight score: 0]

5.

"boredom, because there are times that the topic is boring and I feel like I want to go home."

[Students_CAS\CE_V; Position: 61 - 61; 5/22/2020 01:49; Weight score: 0]

6.3.13.1. i feel sleppy in class

1.

"t's also because I feel bored during our time schedule in math."

[Students_CCIS\CD_A2; Position: 28 - 28; 5/22/2020 00:52; Weight score: 0]

6.3.14. dont like math

1.

"As what I've mentioned earlier. I am having a hard time to understand the lesson it's because I don't like math. For me, it's very complicated."

[Students_COED\CA_M; Position: 16 - 16; 5/21/2020 21:12; Weight score: 0]

2.

"Of course, as a student or should I say most of the students don't like math"

[Students_COED\CA_M; Position: 18 - 18; 5/21/2020 21:13; Weight score: 0]

3.

"There's none and I'm not interested in math"

[Students_COM\CB_M2; Position: 50 - 50; 5/21/2020 22:56; Weight score: 0]

6.3.14.1. makes me feel dizzy

1.

"I don't like seeing too many numbers or formulas it makes me feel dizzy and it blows my mind and it is very complicated?"

[Students_COED\CA_M; Position: 20 - 20; 5/21/2020 21:14; Weight score: 0]

6.3.14.2. not into problem solving

1.

"As for me, every time that I will be asked or given a problem to solve using such formulas in Mathematics, I can't answer right away, because, I am not into problem-solving."

[Students_COED\CA_M; Position: 18 - 18; 5/21/2020 21:13; Weight score: 0]

6.3.14.3. its complicated

1.

"For me, it's very complicated."

[Students_COED\CA_M; Position: 16 - 16; 5/21/2020 21:12; Weight score: 0]

2.

"can't get easily how the solution was because it's more on logic"

[Students_COM\CB_M2; Position: 12 - 12; 5/21/2020 22:44; Weight score: 0]

3.

"For mu own perspective I think because of the formula, process, sequence, problem and numbers. For them math is complicated."

[Students_CAS\CE_V; Position: 67 - 67; 5/22/2020 01:52; Weight score: 0]

4.

"Math is complicated for me because of the numbers and formula's. I have low memory, it is hard for me because I can't remember all the formula for every problem. Math has a very long solution and sometimes our quizzes and assignments are not align to the given examples during the discussion."

[Students_CAS\CE_V; Position: 69 - 69; 5/22/2020 01:52; Weight score: 0]

6.4. Positve Descriptors

6.4.1. related to program enrolled

1.

"For me, Mathematics in the Modern World was partly helpful to my program in a way that it has concepts related to some of our courses."

[Students_CET\CC_R; Position: 19 - 19; 5/21/2020 23:14; Weight score: 0]

2.

"Even if the course was more on solving it had logics which helped me as a Civil Engineering studen"

[Students_CET\CC_R; Position: 48 - 48; 5/21/2020 23:22; Weight score: 0]

3.

"I was a little bit surprised at first because I thought that there will be no more mathematics subject or what. I also thought that in IT, it will just be on computers but it wasn't. But somehow I realized that it is also important to this course."

[Students_CCIS\CD_A1; Position: 16 - 16; 5/22/2020 00:26; Weight score: 0]

4.

"Yes, there are instances that we use the Fibonacci sequence in programming"

[Students_CCIS\CD_A1; Position: 18 - 18; 5/22/2020 00:26; Weight score: 0]

5.

"It depends on the topic. Sometimes there's problems to solve or easy topics like Fibonacci sequence it is very helpful in programming it became easy for me to do programming because I have already the background knowledge of how to solve or compute it. But sometimes it depends on how our teacher taught us about the topic."

[Students_CCIS\CD_A1; Position: 20 - 20; 5/22/2020 00:27; Weight score: 0]

6.4.2. assures competence of students

1.

"I believe also that Math and English shouldn't be a contrasting subject but a relevant one with this we assure full competence among students."

[Students_COED\CA_B; Position: 53 - 53; 5/21/2020 21:04; Weight score: 0]

6.4.3. an avenue for average learners to enjoy and learn to love math

1.

"Mathematics in the Modern World for example is an avenue for average learners to enjoy and learn to love math and for me it's neither difficult nor easy and neither love it nor hate it."

[Students_COED\CA_B; Position: 49 - 49; 5/21/2020 21:00; Weight score: 0]

2.

"Yes. It even came to my own surprise that I can answer and recite whenever my teacher calls me during recitation."

[Students_COED\CA_P; Position: 50 - 50; 5/21/2020 22:23; Weight score: 0]

6.4.4. promote efficacy to math

1.

"There were instances where my answers are wrong, but that's fine because my interest in learning Mathematics has strengthened."

[Students_COED\CA_P; Position: 50 - 50; 5/21/2020 22:23; Weight score: 0]

6.4.5. everywhere

1.

"Mathematics is Everywhere. We can use it in our lives especially if we buy something in the store"

[Students_CAS\CE_B; Position: 27 - 27; 5/22/2020 01:56; Weight score: 0]

6.4.6. lessens persons intoversion

1.

"R: It is very important because it can lessen the person's introversion and when I already build myself-confidence I feel proud for myself."

[Students_CCIS\CD_J; Position: 55 - 55; 5/22/2020 01:33; Weight score: 0]

6.4.7. made me more responsible

1.

"It made me more responsibl"

[Students_CAS\CE_M; Position: 31 - 31; 5/22/2020 01:11; Weight score: 0]

6.4.8. Easy

1.

"Modern World is easy because we research the lesson on our own and it's not that hard. That's all."

[Students_CET\CC_P; Position: 15 - 15; 5/22/2020 00:05; Weight score: 0]

2.

"Because it's not the same as the other branches of mathematics such as algebra and calculus where in you upgrade or simplify. Fibonacci is somehow the same as algebra but it only focuses on the operation addition, algebra on the other hand uses factoring and that makes it much easy."

[Students_CET\CC_P; Position: 21 - 21; 5/22/2020 00:08; Weight score: 0]

6.4.8.1. than other math subjects

1.

"Yes, because the formulas are in a sequence just like Fibonacci unlike algebra where you are going to simplify a long problem. Although they are similar but algebra is more complex than Mathematics in the Modern World."

[Students_CET\CC_P; Position: 23 - 23; 5/22/2020 00:09; Weight score: 0]

6.4.8.2. we research the lesson on our own

1.

"Modern World is easy because we research the lesson on our own and it's not that hard. That's all."

[Students_CET\CC_P; Position: 15 - 15; 5/22/2020 00:05; Weight score: 0]

2.

"Because you yourself can research about the lesson and it does not focus on problem solving but you will only research the history of Mathematics in the Modern World and how these lessons originated."

[Students_CET\CC_P; Position: 17 - 17; 5/22/2020 00:06; Weight score: 0]

6.4.9. just okay

1.

"Well for me it is okay, because learning math is not difficult nor that essay in learning math."

[Students_COM\CB_G; Position: 21 - 21; 5/21/2020 23:00; Weight score: 0]

2.

"Well for me, I can say that it's okay"

[Students_CET\CC_A; Position: 16 - 16; 5/21/2020 23:28; Weight score: 0]

3.

"From what I have experience last semester it was good because it wasn't that difficult but it was not very easy also it is something that is okay and also our teacher was good in teaching us and motivates us from learning the subject."

[Students_CCIS\CD_A1; Position: 12 - 12; 5/22/2020 00:24; Weight score: 0]

6.4.10. challenging

1.

"Mathematics in the Modern World is very challenging"

[Students_COM\CB_M2; Position: 12 - 12; 5/21/2020 22:43; Weight score: 0]

6.4.11. important for day to day situations

1.

"Yes it is, because it is very useful in my daily life situations, as based from the truth that mathematics is exactly everywhere."

[Students_COM\CB_M1; Position: 29 - 29; 5/21/2020 22:39; Weight score: 0]

6.4.12. change my perception about math

1.

"it really changed my perception about mathematics."

[Students_COED\CA_P; Position: 34 - 34; 5/21/2020 22:18; Weight score: 0]

6.4.13. hone critical thinking skills and abstract reasoning

1.

"We cannot deny the fact that we are encountering math and numbers everyday. From the time we woke, we look into our watches, we use calculators to compute for our exchange at a store, we count when we do practice in dancing until the time we go to bed, math is all around us. This subject like any other subject provide students like me a space to learn and hone critical thinking skill, abstract reasoning, etc. whether you are good or not in it."

[Students_COED\CA_B; Position: 51 - 51; 5/21/2020 21:01; Weight score: 0]

2.

"Also, it developed my critical thinking skills because I need to make my own design and solve problems."

[Students_CAS\CE_M; Position: 31 - 31; 5/22/2020 01:11; Weight score: 0]

6.4.14. as important as other subject

1.

"Mathematics in The Modern World is as important as any other subjects."

[Students_COED\CA_B; Position: 51 - 51; 5/21/2020 21:01; Weight score: 0]

6.4.15. fosters sense of belongingness

1.

"So basically, I don't know a lot of people yet in our room, I only knew my friends from the same school. I am a bit hesitant and shy at first maybe because of what we so called the culture shock but as the time went by, my classmates and I learned to adjust and adopt the environment that a classroom should have. Somehow this made me feel belong to the class whenever we had an activity."

[Students_COED\CA_B; Position: 27 - 27; 5/21/2020 20:44; Weight score: 0]

6.4.16. interesting and fun

1.

"The learning of this subject is fun"

[Students_COED\CA_B; Position: 15 - 15; 5/21/2020 20:29; Weight score: 0]

2.

"becomes a lot interesting as the meetings goes on."

[Students_COED\CA_B; Position: 15 - 15; 5/21/2020 20:27; Weight score: 0]

3.

"his subject course is going to be fun"

[Students_COED\CA_P; Position: 34 - 34; 5/21/2020 22:16; Weight score: 0]

4.

"Overall, the experience was fun"

[Students_COED\CA_P; Position: 34 - 34; 5/21/2020 22:17; Weight score: 0]

6.4.16.1. not merely pencil and paper

1.

"it was not merely pencil-and-paper"

[Students_COED\CA_P; Position: 34 - 34; 5/21/2020 22:16; Weight score: 0]

6.4.16.2. lesson

1.

"Well, Mathematics was fun because of the lessons being taught every session."

[Students_COED\CA_B; Position: 17 - 17; 5/21/2020 20:27; Weight score: 0]

6.4.17. appreciate math

1.

"appreciate mathematics."

[Students_COED\CA_B; Position: 15 - 15; 5/21/2020 20:26; Weight score: 0]

6.4.18. important undertaking

1.

"important undertaking for a college student"

[Students_COED\CA_B; Position: 15 - 15; 5/21/2020 20:25; Weight score: 0]

6.5. Reported Course Content

1.

"though it covers a broader scope since all topics are mixed"

[Students_CET\CC_A; Position: 16 - 16; 5/21/2020 23:29; Weight score: 0]

6.5.1. environment

1.

"one interesting factor I could see in learning the subject is the environment inside the classroom."

[Students_COED\CA_B; Position: 17 - 17; 5/21/2020 20:27; Weight score: 0]

6.5.2. does not focus on problem solving

1.

"Because you yourself can research about the lesson and it does not focus on problem solving but you will only research the history of Mathematics in the Modern World and how these lessons originated."

[Students_CET\CC_P; Position: 17 - 17; 5/22/2020 00:06; Weight score: 0]

6.5.3. basic formulas

1.

"There are formulas discussed but they are not that difficult and are very basic."

[Students_CET\CC_P; Position: 19 - 19; 5/22/2020 00:08; Weight score: 0]

6.5.4. more on real life applications

1.

"more on application"

[Students_COED\CA_P; Position: 34 - 34; 5/21/2020 22:17; Weight score: 0]

2.

"It's not only solving problems but also requires application."

[Students_CET\CC_A; Position: 16 - 16; 5/21/2020 23:30; Weight score: 0]

3.

"give an ideas not just on the math itself but also on how we can apply math in real life situations."

[Students_CCIS\CD_J; Position: 11 - 11; 5/22/2020 01:22; Weight score: 0]

6.5.5. solving problems

1.

"Well, in the course mathematics in the modern world it teaches us how to solve problem logically."

[Students_COM\CB_G; Position: 15 - 15; 5/21/2020 22:57; Weight score: 0]

2.

"It's not only solving problems"

[Students_CET\CC_A; Position: 16 - 16; 5/21/2020 23:30; Weight score: 0]

6.5.5.1. logically

1.

"Well, our instructor discussed the Inductive and Deductive Reasoning, from the particular matter we will be able to come up an idea on how we were going to answer such problems on the subject Mathematics in the modern world."

[Students_COM\CB_G; Position: 19 - 19; 5/21/2020 22:59; Weight score: 0]

6.5.5.2. *definition of logical solution*

1.

"It means that it is based on reason and ideas, in other words, with mathematical precision and orderliness and consistency of logic it will help you figure out how to solve a problem."

[Students_COM\CB_G; Position: 17 - 17; 5/21/2020 22:59; Weight score: 0]

6.5.6. more on history

1.

"Because you yourself can research about the lesson and it does not focus on problem solving but you will only research the history of Mathematics in the Modern World and how these lessons originated."

[Students_CET\CC_P; Position: 17 - 17; 5/22/2020 00:07; Weight score: 0]

2.

"Mathematics in the Modern World is more on the history"

[Students_CET\CC_P; Position: 19 - 19; 5/22/2020 00:07; Weight score: 0]

6.5.7. statistics

1.

"statistics mode and mean etc"

[Students_COM\CB_L; Position: 31 - 31; 5/21/2020 23:07; Weight score: 0]

2.

""quota". In the subject also, we have this quartile, decile and percentile"

[Students_CET\CC_A; Position: 18 - 18; 5/21/2020 23:31; Weight score: 0]

3.

"Those who passed in the test was under the process of percentile. We also have this mean, median, mode that we can use to get the grades"

[Students_CET\CC_A; Position: 18 - 18; 5/21/2020 23:31; Weight score: 0]

6.5.8. logic

1.

"At first I don't have any idea about it. For me I don't know if I am that slow when it comes to logic but if you really understand and get the solution it became easy."

[Students_COM\CB_M2; Position: 16 - 16; 5/21/2020 22:47; Weight score: 0]

6.5.9. Nature of mathematics

1.

"Nature of Mathematics"

[Students_COED\CA_P; Position: 46 - 46; 5/21/2020 22:22; Weight score: 0]

6.5.10. matheamtics as language

1.

"Mathematical Language and Symbols."

[Students_COED\CA_P; Position: 46 - 46; 5/21/2020 22:21; Weight score: 0]

2.

"like any language, Mathematics also has its own symbols, syntax and rule."

[Students_COED\CA_P; Position: 48 - 48; 5/21/2020 22:22; Weight score: 0]

6.5.11. basic concepts

1.

"basic concept of the subject"

[Students_COED\CA_B; Position: 15 - 15; 5/21/2020 20:25; Weight score: 0]

6.5.12. number patterns

1.

"number patterns"

[Students_COED\CA_B; Position: 15 - 15; 5/21/2020 20:25; Weight score: 0]

6.5.13. sequences

1.

"know sequences"

[Students_COED\CA_B; Position: 15 - 15; 5/21/2020 20:25; Weight score: 0]

6.5.13.1. fibonacci

1.

"The topic was all about the Fibonacci Sequence. I really had so much fun on that topic."

[Students_COED\CA_B; Position: 19 - 19; 5/21/2020 20:28; Weight score: 0]

2.

"Personally, I love Fibonacci Sequence"

[Students_COED\CA_P; Position: 46 - 46; 5/21/2020 22:20; Weight score: 0]

3.

"Fibonacci and how it originated and the Golden ratio and also its origins."

[Students_CET\CC_P; Position: 19 - 19; 5/22/2020 00:07; Weight score: 0]

4.

"Fibonacci sequence"

[Students_CCIS\CD_A1; Position: 18 - 18; 5/22/2020 00:26; Weight score: 0]

6.6. Percieved Approach to Teaching

6.6.1. professors approach

1.

"Our professor's approach in teaching the subject course."

[Students_COED\CA_P; Position: 40 - 40; 5/21/2020 22:19; Weight score: 0]

6.6.1.1. does not check for understanding

1.

"to learn and he do not check our understanding."

[Students_COM\CB_M2; Position: 18 - 18; 5/21/2020 22:48; Weight score: 0]

6.6.1.2. unmotivating

1.

"Maybe I can say that I am inactive the way our teacher teaches because it was not motivating"

[Students_COM\CB_M2; Position: 18 - 18; 5/21/2020 22:48; Weight score: 0]

6.6.1.3. dont mind whether you learn it or not

1.

"Because our professor tend to explain the lesson too fast and the way he explains the lesson he don't mind whether you learn or not that's it."

[Students_COM\CB_M2; Position: 14 - 14; 5/21/2020 22:45; Weight score: 0]

6.6.1.4. relates math to other courses

1.

"Our professor taught us the comparisons between the English language and the Mathematical language."

[Students_COED\CA_P; Position: 48 - 48; 5/21/2020 22:22; Weight score: 0]

6.6.1.5. makes the subject relatable

1.

"Moreover, some of the topics and lessons are interesting and relatable."

[Students_COED\CA_P; Position: 44 - 44; 5/21/2020 22:20; Weight score: 0]

6.6.1.6. encouarage students

1.

"She always encourages us to try and don't consider Math as an enemy. She also said that Math is not hard, it's us who made it hard. Moreover, some of the topics and lessons are interesting and relatable."

[Students_COED\CA_P; Position: 44 - 44; 5/21/2020 22:20; Weight score: 0]

6.6.2. lot of activities

1.

"We had a lot of activities on this topic"

[Students_COED\CA_B; Position: 21 - 21; 5/21/2020 20:30; Weight score: 0]

6.6.2.1. picture relating

1.

"picture relating, where everybody will have an item to describe and relate to the topic which is the Fibonacci Sequence"

[Students_COED\CA_B; Position: 21 - 21; 5/21/2020 20:32; Weight score: 0]

6.6.2.2. brain storming

1.

"brainstorming"

[Students_COED\CA_B; Position: 21 - 21; 5/21/2020 20:30; Weight score: 0]

6.6.2.3. group sharing

1.

"group sharing"

[Students_COED\CA_B; Position: 21 - 21; 5/21/2020 20:30; Weight score: 0]

6.6.3. discussion is too fast

1.

"Because our professor tend to explain the lesson too fas"

[Students_COM\CB_M2; Position: 14 - 14; 5/21/2020 22:44; Weight score: 0]

2.

"R: I think he discussed the whole lesson to deliver the inputs of the lesson well but the problem is he talked so fas"

[Students_CAS\CE_B; Position: 109 - 109; 5/22/2020 02:04; Weight score: 0]

6.6.4. knowledge received is insufficient

1.

"as a student the consequence of it is that the knowledge that I've received is in not efficien"

[Students_COED\CA_M; Position: 28 - 28; 5/21/2020 21:22; Weight score: 0]

6.6.5. having hard time to catch up

1.

"I was having a hard time to catch up the lessons and my scores in our quizzes are low that led me to the point that I already breakdown."

[Students_COM\CB_M2; Position: 24 - 24; 5/21/2020 22:49; Weight score: 0]

6.6.5.1. the way teacher teaches

1.

"For me, it is not the subject that has a problem maybe the way our teacher teaches. Maybe because he's old enough."

[Students_COM\CB_M2; Position: 26 - 26; 5/21/2020 22:50; Weight score: 0]

6.6.6. short period of time

1.

"I think one of the reasons why the teacher doesn't explain it well because of the short period of time."

[Students_COED\CA_M; Position: 30 - 30; 5/21/2020 21:16; Weight score: 0]

6.6.6.1. reasons for shortening of periods

1.

"As what I've experienced, some of the reasons that made the teacher rush the discussion in short period of time, is that we cannot deny the fact that teaching students alone is the only responsibility of a teacher but rather it is also their obligation to sometimes attend to seminar, or faculty meetings and also travel."

[Students_COED\CA_M; Position: 32 - 32; 5/21/2020 21:24; Weight score: 0]

6.6.7. not well eloborated

1.

"I think it's because of the way the teacher delivers the lesson. The teacher doesn't elaborate it much, and read what has been provided on the book or power point presentation."

[Students_COED\CA_M; Position: 22 - 22; 5/21/2020 21:19; Weight score: 0]

6.6.8. few examples

1.

"Of course, what the teacher uses students tends to depend on it too. Both the teacher and the student has the same book/source. However, we have experienced and proved that our teacher does only depend to that book. Hence, students expect that teacher must provide a clear manifestation of examples to a certain problem-solving that came from other sources/references for the purpose of clarification."

[Students_COED\CA_M; Position: 24 - 24; 5/21/2020 21:19; Weight score: 0]

6.6.9. not contented with the discussion

1.

"Coz, I'm not contented with what the teacher explained or discussed about the lesson"

[Students_COED \ CA_M; Position: 28 - 28; 5/21/2020 21:21; Weight score: 0]

6.6.10. uncomprehensive

1.

"So, of course if the teacher can't deliver the lesson in a comprehensive manner, its effect to me is that it will be more confusing, I can't be able to understand the lesson fully and I'll get bored if that's the case."

[Students_COED \ CA_M; Position: 26 - 26; 5/21/2020 21:20; Weight score: 0]

2.

"I feel bored because the fact the teacher don't discuss the lesson comprehensively"

[Students_COED \ CA_M; Position: 28 - 28; 5/21/2020 21:21; Weight score: 0]

6.6.11. teachers are percieved to be formal and not approachable

1.

"Honestly, I am a shy type person. I don't have a confidence and courage to deal with others even with the teachers and also I see the teacher very formal and not approachable."

[Students_COED \ CA_M; Position: 78 - 78; 5/21/2020 21:54; Weight score: 0]

2.

"But there are teachers that are very intimidating that is why it's hard to approach them and I prefer most of the time to ask my classmates if they know more than I d"

[Students_CET \ CC_P; Position: 59 - 59; 5/22/2020 00:13; Weight score: 0]

3.

"You will tell it if these teachers coincides with some nonsense or jokes of the students and the teacher also throws jokes at the students and somehow it becomes normal to both parties. Unlike some teachers who doesn't take a joke and are easily irritated with the nonsense of the students."

[Students_CET\CC_P; Position: 61 - 61; 5/22/2020 00:14; Weight score: 0]

4.

"There are teachers that are very intimidating at first glance. That is why I do everything to avoid those teachers without knowing if they are or they are not as what I perceived them to be. I might be right that those teachers have an inclement attitude."

[Students_CET\CC_P; Position: 63 - 63; 5/22/2020 00:14; Weight score: 0]

6.6.12. prefers chalk and talk

1.

"I: Would you find it easier if your teacher would explain the lesson through chalk and board discussion?
R: Yes, because I can easily solved problems once it is clearly explained."

[Students_CCIS\CD_J; Position: 16 - 17; 5/22/2020 01:25; Weight score: 0]

6.6.13. recommendation to teaching approach

1.

"Even I, I really don't understand it. Maybe the best way for me to understand it is to discuss the lessons step by step. I guess also the reason is that I am slow when it comes to this. Our professor also tend to discuss using the English language and sometimes he uses words that are hard for us to understand."

[Students_COM\CB_M2; Position: 34 - 34; 5/21/2020 22:52; Weight score: 0]

2.

"If our professor will explain the lesson very well and slowly probably we will understand and learn it."

[Students_COM\CB_M2; Position: 46 - 46; 5/21/2020 22:55; Weight score: 0]

3.

"R: Because it's only a compilation of our reports. If i would suggest, it would be better if they require us an application of the reports toward our subject. There must at least a practical works like research or whatever."

[Students_CET\CC_A; Position: 56 - 56; 5/21/2020 23:42; Weight score: 0]

4.

"It's when the teacher makes sure that the rapport that he/she has with the students is good, in order for us to have an active participation in the class."

[Students_CCIS\CD_A2; Position: 72 - 72; 5/22/2020 00:57; Weight score: 0]

5.

"R: Well, for me I would suggest that they will put the subject Mathematics in the Morning because the sun is still not hot and we're still fresh and not stressed because we still not encounter other subject."

[Students_CAS\CE_B; Position: 95 - 95; 5/22/2020 02:03; Weight score: 0]

6.6.14. Percieved Effectiveness of the Approach

6.6.14.1. NO

1.

"Probably because of the teaching strategy which was ineffective. Ineffective in a way that we had it done through usual reporting."

[Students_CET\CC_R; Position: 23 - 23; 5/21/2020 23:15; Weight score: 0]

6.6.14.1.1. gives few examples

1.

"So, you can't understand or depend to one, two or three examples? Interviewee: Yes, because in math there are lots of examples with a lots of formula. There are times that our quiz is far from what we discussed. During our discussion I cannot ask questions because I don't know that there is still another process or formula in solving the problem."

[Students_CAS\CE_V; Position: 58 - 59; 5/22/2020 01:49; Weight score: 0]

6.6.14.1.2. giving assignments when teacher is not around

1.

"Matter of fact, for me every time that my instructor give us the task, assignment and project while she's not around I don't think it's a good idea because when she does that we will not use that time to make the task she is not around cause in our mind we have a lots time to make it, instead we use the time to strolling around, watching korean drama, chit chating, or either use it to make other task that need to be pass early than the said task."

[Students_CAS\CE_V; Position: 31 - 31; 5/22/2020 01:44; Weight score: 0]

6.6.14.1.3. hard to comprehend

1.

"and some of the information is hard to comprehend."

[Students_CAS\CE_M; Position: 17 - 17; 5/22/2020 01:09; Weight score: 0]

6.6.14.1.4. cannot understand how it is discussed

1.

"I also tend not to listen during discussions and I don't understand our math teacher's way of explaining the lessons."

[Students_CCIS\CD_A2; Position: 24 - 24; 5/22/2020 00:51; Weight score: 0]

6.6.14.1.5. teacher seems lazy to teach

1.

"she always seems lazy to teach"

[Students_CET\CC_A; Position: 40 - 40; 5/21/2020 23:38; Weight score: 0]

6.6.14.1.5.1. learning becomes inaccurate

1.

"Basically, they must be the one teaching us so that we will know and understand better. But since she acted that way, we don't accurately learn."

[Students_CET\CC_A; Position: 42 - 42; 5/21/2020 23:41; Weight score: 0]

6.6.14.1.6. moody

1.

"Our teacher in Mathematics in the Modern World is moody"

[Students_CET\CC_A; Position: 40 - 40; 5/21/2020 23:37; Weight score: 0]

6.6.14.1.7. no teacher intervention

1.

"Having no intervention from the teacher, inputs coming from the reporters were not verified. That is why, I wasn't able to understand the concept of the content."

[Students_CET\CC_R; Position: 31 - 31; 5/21/2020 23:16; Weight score: 0]

6.6.14.1.7.1. leads to confusion

1.

"Having no intervention from the teacher, inputs coming from the reporters were not verified. That is why, I wasn't able to understand the concept of the content."

[Students_CET\CC_R; Position: 31 - 31; 5/21/2020 23:17; Weight score: 0]

6.6.14.1.8. usual reporting

1.

"Probably because of the teaching strategy which was ineffective. Ineffective in a way that we had it done through usual reporting."

[Students_CET\CC_R; Position: 23 - 23; 5/21/2020 23:15; Weight score: 0]

2.

"but rather give us topics to report."

[Students_CET\CC_A; Position: 40 - 40; 5/21/2020 23:38; Weight score: 0]

6.6.14.1.8.1. simply reading

1.

"Based on my observation, reporters were merely reading verbatimly what is in the book. It seemed like it was just a run through discussion."

[Students_CET\CC_R; Position: 25 - 25; 5/21/2020 23:16; Weight score: 0]

6.6.14.1.9. results to laziness

1.

"I feel bored because it not being discussed and I feel lazy analysing the questions especially when he give quizzes."

[Students_COM\CB_L; Position: 45 - 45; 5/21/2020 23:09; Weight score: 0]

6.6.14.1.10. it becomes boring

1.

"At first I feel relieved and I don't have any complains because it is math but upon the run of the class I feel so bored."

[Students_COM\CB_L; Position: 43 - 43; 5/21/2020 23:09; Weight score: 0]

6.6.14.1.11. just provided as the reference

1.

"He is just giving the book to us and then we are taking photos for our quizzes and at the same time on how it will be going to solve. We were looking at the book also what topic is it."

[Students_COM\CB_L; Position: 33 - 33; 5/21/2020 23:08; Weight score: 0]

6.6.14.1.12. teacher is not discussing the topic

1.

"not discussing the topic and we need to analyze it so we can have an answer."

[Students_COM\CB_L; Position: 25 - 25; 5/21/2020 23:06; Weight score: 0]

2.

"She don't actually discuss"

[Students_CET\CC_A; Position: 40 - 40; 5/21/2020 23:38; Weight score: 0]

6.6.14.1.13. anxiety

1.

"I was mentally affected by this course to the point that I already breakdown and I even cried because I really don't know what to do"

[Students_COM\CB_M2; Position: 44 - 44; 5/21/2020 22:55; Weight score: 0]

2.

"I panic because of the tension."

[Students_CAS\CE_V; Position: 39 - 39; 5/22/2020 01:44; Weight score: 0]

6.6.14.1.14. demotivation

1.

"As long as your quizzes are complete and attendance even if the scores are not that high as long as it's passing it's okay."

[Students_COM\CB_M2; Position: 42 - 42; 5/21/2020 22:55; Weight score: 0]

2.

"I was actually influenced by my classmates in Grade 12 who are good at math. They planned to take an engineering course and I, too, had the same plan. It's just that I ended up being an education student."

[Students_CCIS\CD_A2; Position: 40 - 40; 5/22/2020 00:55; Weight score: 0]

3.

"Interviewer: Since your instructor give you a quizzes and assignments that are not align to the given examples, what did you feel or what is your reaction?
Interviewee: I feel upset, sad and unmotivated, because I don't know how to solve it and I don't know if I can answer it."

[Students_CAS\CE_V; Position: 70 - 71; 5/22/2020 01:53; Weight score: 0]

6.6.14.1.14.1. reasons

1.

"The people that I deal with but it depends on the people because there are those who are very judgmental and I feel afraid to share my ideas with them."

[Students_CCIS\CD_J; Position: 57 - 57; 5/22/2020 01:33; Weight score: 0]

2.

"Interviewer: Since your instructor give you a quizzes and assignments that are not align to the given examples, what did you feel or what is your reaction?
Interviewee: I feel upset, sad and unmotivated, because I don't know how to solve it and I don't know if I can answer it."

[Students_CAS\CE_V; Position: 70 - 71; 5/22/2020 01:53; Weight score: 0]

3.

"nterviewee: I am upset, sad and unmotivated because I feel that I will not be able to answer it. I feel down every time I saw how hard it is and I know that I can't do it."

[Students_CAS\CE_V; Position: 73 - 73; 5/22/2020 01:53; Weight score: 0]

6.6.14.2. YES

1.

"Yes definitely"

[Students_COED\CA_B; Position: 23 - 23; 5/21/2020 20:34; Weight score: 0]

6.6.14.2.1. teachers are open to questions/clarifications

1.

"I cannot deny the fact that there are instances that I do not know how to solve a certain mathematical problem maybe it was unclear for me or I just miss the discussion. So, for me to keep on track on the lesson I have to listen to the discussion attentively so that I will not be far behind to my classmates but if not there's no problem with it because the teacher is widely open for clarifications"

[Students_COED \ CA_B; Position: 33 - 33; 5/21/2020 20:48; Weight score: 0]

2.

"I consult my teacher about it but if she's not around the campus I asked other math teachers for clarification for a better understanding."

[Students_CCIS \ CD_J; Position: 39 - 39; 5/22/2020 01:30; Weight score: 0]

6.6.14.2.2. promotes independent learning

1.

"From that experience I learned that being independent is a good thing that happen in my life because I am able to survive my journey in Mathematics in the Modern World without relying to others. It help me grow mentally. Through this I can now tell to my self that there is no things that I can't do. I am motivated by that experience."

[Students_CAS \ CE_V; Position: 49 - 49; 5/22/2020 01:46; Weight score: 0]

6.6.14.2.3. teachers are approachable

1.

"Yes, my teacher is approachable"

[Students_CCIS \ CD_J; Position: 79 - 79; 5/22/2020 01:37; Weight score: 0]

6.6.14.2.4. provides more examples

1.

"It depends, my teacher would ask us if understand the lesson and after that she would task us to give examples to solve the problems."

[Students_CCIS \ CD_J; Position: 71 - 71; 5/22/2020 01:35; Weight score: 0]

6.6.14.2.5. presents procedures step by step

1.

"I solving mathematical problems there are long and short ways but if we can't understand the short way she would use the long way of solving and let us understand each step."

[Students_CCIS\CD_J; Position: 69 - 69; 5/22/2020 01:35; Weight score: 0]

6.6.14.2.6. assumes pre conceive knowledge

1.

"Our teacher think that already have prior knowledge about the lesson. She is time-conscious ."

[Students_CCIS\CD_J; Position: 15 - 15; 5/22/2020 01:25; Weight score: 0]

2.

"There are lessons that we are already familiar with because it has been tackled when I was in high school and our teacher would ask us in what part of the topic we weren't able to understand and she will answer it."

[Students_CCIS\CD_J; Position: 27 - 27; 5/22/2020 01:27; Weight score: 0]

6.6.14.2.7. good teacher

1.

"No, it's not like that. He's actually a good teacher, but even if how good the teacher is, it is always up to the students of he/she will listen attentively or not."

[Students_CAS\CE_M; Position: 45 - 45; 5/22/2020 01:14; Weight score: 0]

2.

"He is a considerate teacher. He gives enough time for us to make projects. He teaches well. He provides many examples during his discussion. It's just that I'm shy to ask to clarify some information that I don't understand."

[Students_CAS\CE_M; Position: 47 - 47; 5/22/2020 01:14; Weight score: 0]

6.6.14.2.8. teaches are kind and considerate

1.

"R: Maximum of 1 month. Because right from the start of the class, the teacher already introduces his projects that we need to comply at the end of the semester.

I: Do you think the given time or the deadline set by your teacher is reasonable?
R: Yes I think so. Our teacher is very kind and considerate."

[Students_CAS\CE_M; Position: 37 - 39; 5/22/2020 01:13; Weight score: 0]

2.

"He is a considerate teacher. He gives enough time for us to make projects. He teaches well. He provides many examples during his discussion. It's just that I'm shy to ask to clarify some information that I don't understand."

[Students_CAS\CE_M; Position: 47 - 47; 5/22/2020 01:14; Weight score: 0]

6.6.14.2.9. give advance reading lessons

1.

"Actually, our teacher doesn't give any assignments, but he does always instruct us to have an advance reading with our lessons."

[Students_CAS\CE_M; Position: 33 - 33; 5/22/2020 01:12; Weight score: 0]

6.6.14.2.9.1. helps student prepare

1.

"I can easily follow the lessons"

[Students_CAS\CE_M; Position: 35 - 35; 5/22/2020 01:12; Weight score: 0]

6.6.14.2.10. teacher motivates the students to learn the subject

1.

"motivates us from learning the subject"

[Students_CCIS\CD_A1; Position: 12 - 12; 5/22/2020 00:25; Weight score: 0]

2.

"Yes, I consider her as my motivation because she taught us to respect every individual without judgment and lessen comparing myself with others because each of us has unique characteristics."

[Students_CCIS\CD_J; Position: 59 - 59; 5/22/2020 01:33; Weight score: 0]

6.6.14.2.10.1. highlighting its application to real life situations

1.

"When my sister encourage me to study math and by connecting the importance of math in the real world. That everywhere we go, there is always a math in our lives. For example, if you don't know mathematics, how can you count? Everywhere you go, math is always there. Which also made me think that it's really important for us to learn mathematics even though I enrolled in different course."

[Students_CCIS\CD_A1; Position: 14 - 14; 5/22/2020 00:25; Weight score: 0]

6.6.14.2.11. making sure that the topics are learned

1.

": I can't learn the topic. And our teacher knows already that we can't really comprehend with the topic because of how the reporters relay their reports. For example, I reported a certain topic and observes that my classmates do not comprehend with the topic and she asks me questions regarding the report and I cannot reply, she will stop me from reporting and she will take over.
I: So if your teacher is the one who discusses a topic in Mathematics in the Modern World, do you understand the discussion well?
R: Yes, because the teacher has an inclement attitude where she gets mad at not paying attention."

[Students_CET\CC_P; Position: 113 - 115; 5/22/2020 00:20; Weight score: 0]

2.

"Does your teacher let you proceed to the next topic even though the las report was not good?
R: She doesn't really proceed but we need to catch time because there are so many reporters in our class. In the miderm period, there are so plenty of reporters. If we really did not understand the report, she will take over and teach it to us. Then she will remind the next reporter to not to do what the previous reporter did because you classmates did not understood the report. But there are still times that some of our classmates do the same thing. I have several classmates who are very shy when they are in front of a crowd. But, the student who's afraid of standing in front of the class is the brightest student among all."

[Students_CET\CC_P; Position: 128 - 129; 5/22/2020 00:18; Weight score: 0]

6.6.14.2.12. reinforced presentation

1.

"If it's only our classmate who discusses the lesson, we merely can comprehend and our instructor comes in and asks us whether we understand the lesson or not and when she gets no response, she knows that we did not understand the lesson and she discusses the topic and adds information."

[Students_CET\CC_P; Position: 27 - 27; 5/22/2020 00:10; Weight score: 0]

2.

"There are lessons that we are already familiar with because it has been tackled when I was in high school and our teacher would ask us in what part of the topic we weren't able to understand and she will answer it."

[Students_CCIS\CD_J; Position: 27 - 27; 5/22/2020 01:28; Weight score: 0]

6.6.14.2.13. fun and meaningful

1.

"Definitely we could have a lot of ways for a learning to be more fun and meaningful where students are the one to discover and explore things with the aid of technology as well."

[Students_COED\CA_B; Position: 23 - 23; 5/21/2020 20:37; Weight score: 0]

6.6.14.2.14. a new shift on mindset about maths

1.

"Maybe we have this mindset that whenever we hear the subject Mathematics it is all about problem solving and paper-pencil works where the teacher provides the information to the class, no it's not."

[Students_COED\CA_B; Position: 23 - 23; 5/21/2020 20:36; Weight score: 0]

6.6.14.2.15. to learn better

1.

"to learn better in the subject"

[Students_COED\CA_B; Position: 23 - 23; 5/21/2020 20:36; Weight score: 0]

6.6.14.2.16. fosters particiaption to the discussion

1.

"to participate more in the discussion"

[Students_COED\CA_B; Position: 23 - 23; 5/21/2020 20:35; Weight score: 0]

2.

"If there are instances that I'm having a hard time understanding the lesson, I always ask our teacher right away or I ask help from my classmates and if I find the topic interesting I would study by myself about it."

[Students_CCIS\CD_A1; Position: 52 - 52; 5/22/2020 00:32; Weight score: 0]

6.6.14.2.17. promote confidence

1.

"encourages students to build competence with confidence"

[Students_COED\CA_B; Position: 23 - 23; 5/21/2020 20:35; Weight score: 0]

2.

"I build my confidence by sharing my ideas without judgment from my classmates."

[Students_CCIS\CD_J; Position: 51 - 51; 5/22/2020 01:32; Weight score: 0]

3.

"From all those experiences I realize that we should not be scared to share our knowledge and I also realized that I should be confident with my answers and that I should not compare my capacity with others"

[Students_CCIS\CD_J; Position: 53 - 53; 5/22/2020 01:32; Weight score: 0]

4.

"I think I should be braver and have self confidence and push myself more to learn and be a better person."

[Students_CAS\CE_M; Position: 53 - 53; 5/22/2020 01:15; Weight score: 0]

6.6.14.2.18. encourages student

1.

"encourages students to build competence"

[Students_COED\CA_B; Position: 23 - 23; 5/21/2020 20:34; Weight score: 0]

6.6.15. uses technology

1.

"Definitely we could have a lot of ways for a learning to be more fun and meaningful where students are the one to discover and explore things with the aid of technology as well."

[Students_COED \ CA_B; Position: 23 - 23; 5/21/2020 20:38; Weight score: 0]

2.

"We are living in a modern era where technology is readily available and a lot of things are already run by it including the sector of education. Our teacher was able to accommodate and use technology during our classes. With the use of T.V. monitor and laptop, the discussions run smoothly and productively."

[Students_COED \ CA_B; Position: 25 - 25; 5/21/2020 20:40; Weight score: 0]

6.6.15.1. video clips

1.

"show us video clips"

[Students_CCIS \ CD_J; Position: 13 - 13; 5/22/2020 01:23; Weight score: 0]

6.6.15.1.1. quick paced

1.

"Every class meeting we can finish one lesson it's because she will just show us video clips."

[Students_CCIS \ CD_J; Position: 25 - 25; 5/22/2020 01:27; Weight score: 0]

6.6.16. outcomes based

1.

"and outcomes-based."

[Students_COED \ CA_P; Position: 34 - 34; 5/21/2020 22:17; Weight score: 0]

6.6.17. exploratory

1.

"we are the one looking for ways to be able to solve the problem."

[Students_CCIS \ CD_J; Position: 13 - 13; 5/22/2020 01:24; Weight score: 0]

6.6.18. participatory

1.

"it encourages students to build competence with confidence, to participate more in the discussion"

[Students_COED\CA_B; Position: 23 - 23; 5/21/2020 20:38; Weight score: 0]

6.6.19. Discovery approach

1.

"Definitely we could have a lot of ways for a learning to be more fun and meaningful where students are the one to discover and explore things with the aid of technology as well."

[Students_COED\CA_B; Position: 23 - 23; 5/21/2020 20:37; Weight score: 0]

6.7. course requirements

6.7.1. reporting

1.

"Yes! We report every time."

[Students_CET\CC_P; Position: 25 - 25; 5/22/2020 00:09; Weight score: 0]

6.7.2. just final exam

1.

": Honestly, we did not have any form of evaluation other than the final exam.
Like no quizzes, recitations or even summative tests."

[Students_CET\CC_R; Position: 39 - 40; 5/21/2020 23:19; Weight score: 0]

2.

"No quiz and no evaluation but there is exam"

[Students_CET\CC_A; Position: 40 - 40; 5/21/2020 23:40; Weight score: 0]

6.7.3. sometimes in conflict with other requirements

1.

"As what I said we always had tons of paper works from other subjects. Aside from Mathematics in the Modern World we had other eight subjects to work on too. The quizzes, assignments and projects were not only the requirements for one subject still we had to submit paper works for other subjects and that makes our schedule and time management in trouble."

[Students_COED \ CA_B; Position: 47 - 47; 5/21/2020 20:57; Weight score: 0]

6.7.4. take home activities

1.

"take-home activities"

[Students_COED \ CA_B; Position: 43 - 43; 5/21/2020 20:55; Weight score: 0]

6.7.5. major exams

1.

"both midterm and finals"

[Students_COED \ CA_B; Position: 43 - 43; 5/21/2020 20:55; Weight score: 0]

2.

"course term examinations."

[Students_COED \ CA_P; Position: 62 - 62; 5/21/2020 22:30; Weight score: 0]

6.7.6. quizzes

1.

"quizzes after the discussion of the topics"

[Students_COED \ CA_B; Position: 43 - 43; 5/21/2020 20:55; Weight score: 0]

2.

"pre-tests, quiz right after every lesson, post-tests"

[Students_COED \ CA_P; Position: 62 - 62; 5/21/2020 22:30; Weight score: 0]

3.

"But sometimes we got confused to some topics and especially when there are quizzes that are far from the example given."

[Students_CCIS \ CD_A1; Position: 22 - 22; 5/22/2020 00:27; Weight score: 0]

6.7.6.1. content not discussed

1.

"Interviewer: You said that there are some questions that are not included in your discussion. It's affect your learning or not?
Interviewee: Of course it affect me, because I thought that the quizzes should be taken from the discussion and I don't even know how to solve it

because I don't even know the formula and it is knew to me. I know that the instructor just want us to be more knowledgeable but she should give us warning that there is a question that out of our discussion because our expectation is far from what happen."

[Students_CAS\CE_V; Position: 54 - 55; 5/22/2020 01:48; Weight score: 0]

2.

"nterviewee: Yes, but I didn't mean that she cannot put some questions that are out of the discussion. For me I just want her to give some examples that same with it and how to solve it so that I can just know the formula how to solve it. We expect that she should give more examples with different formula and process. Because math is so difficult for us we cannot easily understand by just giving one example, process and formula."

[Students_CAS\CE_V; Position: 57 - 57; 5/22/2020 01:48; Weight score: 0]

3.

"R: There are times that the example is related to the quizzes but sometimes the quiz that he gave was hard and we couldn't understand it
I: So during that time you are having a difficulty to answer because you couldn't understand because it was not discussed by your teacher?
R: Yes, so we just answer it because we don't have a choice
I: So since you just answered it because you don't have a choice, is there a tendency that your answer is correct?"

[Students_CAS\CE_B; Position: 57 - 60; 5/22/2020 02:00; Weight score: 0]

6.7.6.2. tends to be confusing

1.

"But sometimes we got confused to some topics and especially when there are quizzes that are far from the example given."

[Students_CCIS\CD_A1; Position: 22 - 22; 5/22/2020 00:27; Weight score: 0]

2.

"Yes, for example, that certain topic that was tackled about was relations and functions. It was easy to answer during the discussion but it became complex and complicated when it turned to be a seatwork or even in exams and much worse if there is some instances that our teacher would gave us quizzes that haven't been discussed before."

[Students_CCIS\CD_A1; Position: 24 - 24; 5/22/2020 00:28; Weight score: 0]

6.7.6.2.1. not parallel to the given examples

1.

"Yes, for example, that certain topic that was tackled about was relations and functions. It was easy to answer during the discussion but it became complex and complicated when it turned to be a seatwork or even in exams and much worse if there is some instances that our teacher would gave us quizzes that haven't been discussed before."

[Students_CCIS\CD_A1; Position: 24 - 24; 5/22/2020 00:28; Weight score: 0]

2.

"Math is complicated for me because of the numbers and formula's. I have low memory, it is hard for me because I can't remember all the formula for every problem. Math has a very long solution and sometimes our quizzes and assignments are not align to the given examples during the discussion."

[Students_CAS\CE_V; Position: 69 - 69; 5/22/2020 01:52; Weight score: 0]

3.

"R: There are times that the example is related to the quizzes but sometimes the quiz that he gave was hard and we couldn't understand it
I: So during that time you are having a difficulty to answer because you couldn't understand because it was not discussed by your teacher?
R: Yes, so we just answer it because we don't have a choice
I: So since you just answered it because you don't have a choice, is there a tendency that your answer is correct?"

[Students_CAS\CE_B; Position: 57 - 60; 5/22/2020 02:00; Weight score: 0]

6.7.7. time consuming

1.

"Quizzes and exams."

[Students_CCIS\CD_J; Position: 23 - 23; 5/22/2020 01:27; Weight score: 0]

6.7.8. assignments

1.

"we had assignments"

[Students_COED\CA_B; Position: 43 - 43; 5/21/2020 20:56; Weight score: 0]

6.7.9. projects

1.

"projects"

[Students_COED\CA_B; Position: 43 - 43; 5/21/2020 20:55; Weight score: 0]

2.

"Our project is Mandala Tessellation. It is about a geometric configuration of symbol or pattern with a very different application. It is a cosmic diagram that shows the relation to the infinite and the world that extends beyond and within minds and bodies."

[Students_CAS\CE_M; Position: 27 - 27; 5/22/2020 01:10; Weight score: 0]

6.7.9.1. joining cheerdance

1.

"I: Did you have a project related to the subject Mathematics?
R: No we haven't because our teacher wants us to join the Cheerdance Competition and it serves as our project"

[Students_CAS\CE_B; Position: 68 - 69; 5/22/2020 02:01; Weight score: 0]

6.7.9.1.1. unrelated to the class

1.

"I: Is cheerdance related to Math?
R: For me No
I: How did you say so?
R: Because it was a dance. Dance and number are completely different
I: Did you ask to your teacher why he gave that as your project?
R: Nope, we just go with the flow
I: Why?
R: Because it was easy
I: So you are saying that if what makes you easy to deal with then you just go with the flow?"

[Students_CAS\CE_B; Position: 70 - 78; 5/22/2020 02:02; Weight score: 0]

6.7.9.2. compilation of reports

1.

"Though it was a only a compilation, I was able to review my report and the other reports as well while compiling them."

[Students_CET\CC_R; Position: 44 - 44; 5/21/2020 23:20; Weight score: 0]

2.

"compilation of all soft copies of our reports in her class."

[Students_CET\CC_A; Position: 52 - 52; 5/21/2020 23:41; Weight score: 0]

6.7.9.2.1. results to learning nothing

1.

"How does compilation of reports as project contribute to your understanding of the course?
R: Well I can say nothing.
I: Why did you say nothing"

[Students_CET\CC_A; Position: 53 - 55; 5/21/2020 23:42; Weight score: 0]

6.7.9.3. compilation of quizzes and assignments

1.

"compilations of our quizzes and assignments."

[Students_COM\CB_M2; Position: 36 - 36; 5/21/2020 22:53; Weight score: 0]

2.

"It's not difficult because our project is a compilation of our quizzes."

[Students_COM\CB_L; Position: 59 - 59; 5/21/2020 23:10; Weight score: 0]

6.7.9.3.1. serves as reviewer

1.

"It helps me in the sense that it serves as my reviewer it has a big help because the examples that our professors given to us appears on the exams."

[Students_COM\CB_M2; Position: 38 - 38; 5/21/2020 22:53; Weight score: 0]

2.

"Less stress and works because I can spend my time to review."

[Students_COM\CB_L; Position: 61 - 61; 5/21/2020 23:11; Weight score: 0]

3.

"It could have been better if we had one. But we had a project."

[Students_CET\CC_R; Position: 42 - 42; 5/21/2020 23:19; Weight score: 0]

6.8. Students Learning Behavior

6.8.1. Negative

6.8.1.1. lazy

1.

"Also maybe I am just too lazy that's why I can say that it was difficult."

[Students_COM\CB_M2; Position: 16 - 16; 5/21/2020 22:47; Weight score: 0]

2.

"I just don't feel going to school and I feel lazy."

[Students_CAS\CE_M; Position: 21 - 21; 5/22/2020 01:09; Weight score: 0]

6.8.1.2. lack of focus

1.

"I am lack of focus"

[Students_COM\CB_M2; Position: 32 - 32; 5/21/2020 22:51; Weight score: 0]

6.8.1.3. inactive in class

1.

"Maybe I can say that I am inactive the way our teacher teaches because it was not motivating to learn and he do not check our understanding."

[Students_COM\CB_M2; Position: 18 - 18; 5/21/2020 22:47; Weight score: 0]

2.

"don't pay attention in class discussion"

[Students_CAS\CE_M; Position: 17 - 17; 5/22/2020 01:08; Weight score: 0]

3.

"It is not easy for me in way that I don't pay attention during the discussion because I am not really inclined to that kind of subject and also there are lots of problems to solve."

[Students_CAS\CE_V; Position: 19 - 19; 5/22/2020 01:39; Weight score: 0]

6.8.1.4. abseentism

1.

"R: I don't pay attention to the discussion because I don't understand the lesson. And it's probably because I missed a lot of lessons due to the fact that I'm always absent."

[Students_CAS\CE_M; Position: 19 - 19; 5/22/2020 01:09; Weight score: 0]

6.8.1.5. shyness

1.

"Aside from my shyness, I always doubt myself because my question might be incorrect."

[Students_CCIS\CD_J; Position: 75 - 75; 5/22/2020 01:36; Weight score: 0]

2.

"What hinder me to ask questions is being a timid person"

[Students_CAS\CE_V; Position: 61 - 61; 5/22/2020 01:49; Weight score: 0]

6.8.1.5.1. afraid to ask wrong questions

1.

"Aside from my shyness, I always doubt myself because my question might be incorrect."

[Students_CCIS\CD_J; Position: 75 - 75; 5/22/2020 01:36; Weight score: 0]

2.

"I am really a introvert person and I was afraid to raise a question because I think that I an the only one who didn't understand the lesson because my classmates said yes if our instructor ask if we understood the lesson."

[Students_CAS\CE_V; Position: 63 - 63; 5/22/2020 01:50; Weight score: 0]

6.8.2. Positive

6.8.2.1. just enjoy the subject

1.

"For me, my performance was good. And I think I did not yet give my best because I don't want to pressure myself. I just want to be a student who enjoy this subject."

[Students_COM\CB_G; Position: 41 - 41; 5/21/2020 23:03; Weight score: 0]

2.

"What I mean is that I am not aiming for a higher score or a higher grade in the subject mathematics in the modern world just to pressure myself I think what is important for me is that I really try my best to do the performance and comply all the requirements that we need to pass and I think it is enough for me to pass and got my deserving grades best on my performance."

[Students_COM\CB_G; Position: 43 - 43; 5/21/2020 23:04; Weight score: 0]

6.8.2.2. Good Relationship with Classmates

1.

"That's right. Having a good relationship and understanding with your classmates is very important not just to have friends and companions but also to have a support and help throughout the year. And it's a college thing, many are saying that you cannot survive college alone and without the help of others. And indeed, on this subject Mathematics in the Modern World you could feel the same."

[Students_COED\CA_B; Position: 31 - 31; 5/21/2020 20:46; Weight score: 0]

2.

"my classmates as well are welling to help whenever I ask them."

[Students_COED\CA_B; Position: 33 - 33; 5/21/2020 20:48; Weight score: 0]

3.

"Well, our schedule on this subject was a bit early at 7:30 in the morning, Monday and Wednesday. I admit that there are times that I was late and whenever I arrived in our class the teacher was already done or halfway done with the discussion. What I need to do is to check from my classmate's lectures and ask them to somehow recall the discussion."

[Students_COED\CA_B; Position: 35 - 35; 5/21/2020 20:48; Weight score: 0]

4.

"My classmates are all good, they don't affect my performance even some of them are "pabibo"."

[Students_COM\CB_G; Position: 29 - 29; 5/21/2020 23:01; Weight score: 0]

5.

"No, because as a student it is normal to encounter those kind of students with those kind of attitude which is "pabibo ", so, I'm just go with the flow and so far they did not affect my performance because we have our own learnings and I'm learning from the discussion of the teacher and not from the chitchat of my classmates."

[Students_COM\CB_G; Position: 31 - 31; 5/21/2020 23:02; Weight score: 0]

6.

"They were a great help to me. They don't intimidate me. I feel comfortable asking help from them because I'm not the only one who asks help but my classmates who are the same with me do, too."

[Students_CCIS\CD_A2; Position: 64 - 64; 5/22/2020 00:56; Weight score: 0]

6.8.2.2.1. peer mentoring

1.

"Some of my classmates ask me to teach them because they see my performance in class. Also by getting a high score from quizzes but unfortunately we don't have quizzes since then."

[Students_CET\CC_A; Position: 22 - 22; 5/21/2020 23:33; Weight score: 0]

2.

"es, it is effective because some of my classmates and I already knew the topic since we were already taught by the second year. Some didn't understand what our teacher teaches and some knew already since they got an advance teaching."

[Students_CET\CC_A; Position: 38 - 38; 5/21/2020 23:37; Weight score: 0]

3.

"For now I can say by teaching them what i know. You see some of them ask me about something in math and I always feel happy to answer them especially when I knew it."

[Students_CET\CC_A; Position: 74 - 74; 5/21/2020 23:43; Weight score: 0]

4.

"It's not like that. My friends are smart to be honest. They teach me how these lessons are and they explain the lessons further that's why I do not raise my hand to ask questions because I ask my friends instead and if they have already answered my questions, I can understand easily what they have said because we are close."

[Students_CET\CC_P; Position: 41 - 41; 5/22/2020 00:12; Weight score: 0]

5.

"If it's the teacher, it does hinder me from knowing the lessons. But if I can't really comprehend, that's the time where I make my own ways such as asking my classmates because they know more than I do. My classmates also ask questions to my other classmates if they also don't understand the lesson."

[Students_CET\CC_P; Position: 67 - 67; 5/22/2020 00:14; Weight score: 0]

6.

"If there are instances that I'm having a hard time understanding the lesson, I always ask our teacher right away or I ask help from my classmates and if I find the topic interesting I would study by myself about it."

[Students_CCIS\CD_A1; Position: 52 - 52; 5/22/2020 00:32; Weight score: 0]

7.

"I take notes and ask help from my classmates."

[Students_CCIS\CD_A2; Position: 38 - 38; 5/22/2020 00:53; Weight score: 0]

8.

"R: We would help each other on how to solve the problems. We share our thought with our classmates until we can arrive with the correct formula to solve the problem."

[Students_CCIS\CD_J; Position: 19 - 19; 5/22/2020 01:26; Weight score: 0]

9.

"I build my confidence by sharing my ideas without judgment from my classmates."

[Students_CCIS\CD_J; Position: 51 - 51; 5/22/2020 01:32; Weight score: 0]

6.8.2.2.1.1. collaboration

1.

"I: In what cases did you collaborate and share answers with your classmates?
R: during group activities and quizzes."

[Students_CCIS\CD_J; Position: 48 - 49; 5/22/2020 01:32; Weight score: 0]

2.

"For instance, there is a project and we don't have any idea what it is or how to do it. To me I will do it with myself, and by understanding the project I can make it on my own idea, I will not depend on my classmates even if my project is far different from their but at least I understand the topic I understand what am I making through that I trusting myself and I have confidence that my project is correct."

[Students_CAS\CE_V; Position: 47 - 47; 5/22/2020 01:45; Weight score: 0]

6.8.2.2.1.2. group study

1.

"Self study or group study."

[Students_CET\CC_A; Position: 24 - 24; 5/21/2020 23:34; Weight score: 0]

6.8.2.2.1.3. brainstorming

1.

"Brainstorming"

[Students_CCIS\CD_J; Position: 21 - 21; 5/22/2020 01:26; Weight score: 0]

2.

"We cooperate to each other like brainstorming, of course we cannot avoid the fact that we also cheat"

[Students_CAS\CE_B; Position: 53 - 53; 5/22/2020 01:59; Weight score: 0]

6.8.2.2.2. by setting as good example

1.

"I show it through my performance."

[Students_CET\CC_A; Position: 20 - 20; 5/21/2020 23:33; Weight score: 0]

2.

"Studying."

[Students_CET\CC_A; Position: 22 - 22; 5/21/2020 23:33; Weight score: 0]

3.

"They were a great help to me. They don't intimidate me. I feel comfortable asking help from them because I'm not the only one who asks help but my classmates who are the same with me do, too."

[Students_CCIS\CD_A2; Position: 64 - 64; 5/22/2020 00:56; Weight score: 0]

6.8.2.2.3. support mechanism

1.

"Well, our schedule on this subject was a bit early at 7:30 in the morning, Monday and Wednesday. I admit that there are times that I was late and whenever I arrived in our class the teacher was already done or halfway done with the discussion. What I need to do is to check from my classmate's lectures and ask them to somehow recall the discussion."

[Students_COED\CA_B; Position: 35 - 35; 5/21/2020 20:49; Weight score: 0]

2.

"My classmates help me in the sense that when I ask them how to solve the task they explain it to me clearly."

[Students_COM\CB_M2; Position: 40 - 40; 5/21/2020 22:54; Weight score: 0]

3.

"They were a great help to me. They don't intimidate me. I feel comfortable asking help from them because I'm not the only one who asks help but my classmates who are the same with me do, too."

[Students_CCIS\CD_A2; Position: 64 - 64; 5/22/2020 00:56; Weight score: 0]

6.8.2.2.3.1. foster good study habits

1.

"The advantage is we don't feel shy now to ask questions especially from the second year students and sometimes we also do some sharing of ideas and experiences in the rooftop."

[Students_CET\CC_A; Position: 36 - 36; 5/21/2020 23:36; Weight score: 0]

2.

"They were a great help to me. They don't intimidate me. I feel comfortable asking help from them because I'm not the only one who asks help but my classmates who are the same with me do, too."

[Students_CCIS\CD_A2; Position: 64 - 64; 5/22/2020 00:56; Weight score: 0]

6.8.2.2.3.2. fosters postive attitude

1.

"The advantage is we don't feel shy now to ask questions especially from the second year students and sometimes we also do some sharing of ideas and experiences in the rooftop."

[Students_CET\CC_A; Position: 36 - 36; 5/21/2020 23:36; Weight score: 0]

2.

"They were a great help to me. They don't intimidate me. I feel comfortable asking help from them because I'm not the only one who asks help but my classmates who are the same with me do, too."

[Students_CCIS\CD_A2; Position: 64 - 64; 5/22/2020 00:56; Weight score: 0]

6.8.2.3. reflective of faults

1.

"I think it will be best for me to practice and strengthen time management. As a college student it is normal to be fully loaded with projects and school works, but being a college student also means being realistic and practical. I believe having a well-planned time management will help me deal with school works and also personal life."

[Students_COED\CA_B; Position: 41 - 41; 5/21/2020 20:53; Weight score: 0]

6.8.2.4. good time management

1.

"I believe having a well-planned time management will help me deal with school works and also personal life."

[Students_COED\CA_B; Position: 41 - 41; 5/21/2020 20:53; Weight score: 0]

2.

"Interviewer: In relation to that, you said that you manage your time by studying and making your projects. By managing your time gives you a positive result?
Interviewee: Yes, it give me a positive result because I am able to answer every time there is a unannounced quiz. Even if there are times that some of the questions in our quiz given our instructor is not include in our discussion still I can cope with it."

[Students_CAS\CE_V; Position: 52 - 53; 5/22/2020 01:47; Weight score: 0]

6.8.2.5. positive mindset

1.

"No, because as a student it is normal to encounter those kind of students with those kind of attitude which is "pabibo ", so, I'm just go with the flow and so far they did not affect my performance because we have our own learnings and I'm learning from the discussion of the teacher and not from the chitchat of my classmates."

[Students_COM\CB_G; Position: 31 - 31; 5/21/2020 23:02; Weight score: 0]

6.8.2.6. passionate

1.

"Also, the reason why I study these things because I have my passion. It's when i keep growing from prior knowledge in elementary and assimiliated with new knowledge in the next year and so on and so forth."

[Students_CET\CC_A; Position: 18 - 18; 5/21/2020 23:33; Weight score: 0]

6.8.2.7. self study

1.

"Self study"

[Students_CET\CC_A; Position: 24 - 24; 5/21/2020 23:34; Weight score: 0]

2.

"self-study."

[Students_CCIS\CD_J; Position: 31 - 31; 5/22/2020 01:28; Weight score: 0]

6.8.2.7.1. insufficient

1.

"it is not enough because it's still better if I get information and ideas from a more knowledgeable other which is my teacher."

[Students_CCIS\CD_J; Position: 33 - 33; 5/22/2020 01:29; Weight score: 0]

6.8.2.7.2. using main text refernce

1.

"from books"

[Students_CET\CC_A; Position: 26 - 26; 5/21/2020 23:35; Weight score: 0]

6.8.2.7.3. through the internet

1.

"i also search from the internet for more informations which makes me easier to understand. I also asked some of our classamtes to check if what i learn is right and yeah, use other sources from the internet."

[Students_CET\CC_A; Position: 26 - 26; 5/21/2020 23:34; Weight score: 0]

6.9. Challenges

6.9.1. a lot of requirements

1.

"Other requirements in the course affects me in paying attention to the discussion. I worried about what things I should do first if it is projects and assignments or where I should get money for my allowance, boarding house, and for the project expenses because not all the time my parents can give and my money is already budgeted."

[Students_CAS\CE_V; Position: 21 - 21; 5/22/2020 01:40; Weight score: 0]

2.

"nterviewee: I put more time in my projects and assignments because of the set time of submission and it takes time to be done distinct of studying I always have residuary time for it and if there are some point that I don't understand I can easily ask my classmate to explain it further"

[Students_CAS\CE_V; Position: 23 - 23; 5/22/2020 01:41; Weight score: 0]

6.9.1.1. shorter days to comply

1.

"Interviewer: How many cited days for the submission of the projects and assignments?
Interviewee: I think the cited days for the projects submission are 4 to 6 days. Actually there are some projects that give in the first meeting then it will be submitted in the next meeting so, there is 2 cited days for project submission."

[Students_CAS\CE_V; Position: 24 - 25; 5/22/2020 01:41; Weight score: 0]

6.9.1.1.1. but sufficient

1.

"Yes, because our instructor give us a time to do our project. When she give the project in our first meeting then the second meeting will be our time to make that project. There are also time that she will not be able to meet us so, she will give us a task, assignment and project to work on that vacant time."

[Students_CAS\CE_V; Position: 27 - 27; 5/22/2020 01:42; Weight score: 0]

6.9.1.2. requires finances

1.

"Other requirements in the course affects me in paying attention to the discussion. I worried about what things I should do first if it is projects and assignments or where I should get money for my allowance, boarding house, and for the project expenses because not all the time my parents can give and my money is already budgeted."

[Students_CAS\CE_V; Position: 21 - 21; 5/22/2020 01:41; Weight score: 0]

6.9.2. teachers diversity

1.

"It is normal for students to expect but in my perception we should not expect too much from the teacher because they are diverse and they have unique way of teaching and they do their best so that we-students can understand the lesson."

[Students_CCIS\CD_J; Position: 67 - 67; 5/22/2020 01:35; Weight score: 0]

6.9.3. slow retention among students

1.

"can't recall those because I already forgot.
Interviewer 1: How come you already forgot?
Respondent: Maybe because I have a short-term memory loss.
Interviewer 1: What do you mean by that?
Respondent: I easily forget lessons discussed in the class — like even if the lesson is discussed just today, it will be instantly forgotten the next day. Nevertheless, I still have the interest to learn math."

[Students_CCIS\CD_A2; Position: 16 - 20; 5/22/2020 00:52; Weight score: 0]

6.9.4. program is dominated by opposite sex: Boys

1.

"In the first day of class, I admit that it was really awkward. Back then, it was really uncomfortable because I was thinking if "What if I answered the wrong thing during recitation?" "What if my classmates, specifically the guys, laughs or anything?" That is what I felt back then, but now, we're all really close."

[Students_CCIS\CD_A1; Position: 38 - 38; 5/22/2020 00:30; Weight score: 0]

6.9.5. from different strands

1.

"For me, because we are IT students and we are focused on computers. So, if it is about the math subject, we are like confused because way back in senior high school, some of us took different strands, just like me, I took the strand of Humss and we weren't offered with this subject and it took sometimes for us to adjust so in 100%, I think, there is about 70% who are not okay. And those remaining 30% who are okay with math are mostly boys because there are many male in our whole section than females."

[Students_CCIS\CD_A1; Position: 34 - 34; 5/22/2020 00:29; Weight score: 0]

6.9.6. distance to school

1.

"Because they listened to the report. Also because the class starts early as 8:00 am in the morning then I traveled from San Juaquin so I have to wake up early as 4:00 am and when I arrive in the classroom, I am prone to sleeping especially if the reporters are boring and there are some of my classmates that corporates jokes to their reports and they make me understand more because there are reporters in the class that reads only their report and they don't give enough explanation regarding their report."

[Students_CET\CC_P; Position: 69 - 69; 5/22/2020 00:15; Weight score: 0]

2.

"We still have classes 7:00 pm to 8:00 pm. After the class, I travel back home and arrive approximately 9:00 in the evening. And I always go to sleep around 11:00 pm to 12:00 am because I have to study for the morning class in the next day. And wake up early as 4:00 am to prepare for school and travel as usual."

[Students_CET\CC_P; Position: 87 - 87; 5/22/2020 00:16; Weight score: 0]

6.9.7. unconducive time slot

1.

"Yes, there were. Since our course schedule ends at noon, the temperature is hot. And it worsened because our classroom was not well ventilated. And the fact that the period ends at noon, I can't resist the need to be energized by food."

[Students_CET\CC_R; Position: 35 - 35; 5/21/2020 23:18; Weight score: 0]

2.

"Maybe because of our time schedule — it's in holy hours."

[Students_CCIS\CD_A2; Position: 24 - 24; 5/22/2020 00:50; Weight score: 0]

3.

"The schedule of our class in Mathematics is a "holy hour" as we call it. It is in the afternoon and I felt sleepy."

[Students_CAS\CE_M; Position: 43 - 43; 5/22/2020 01:13; Weight score: 0]

4.

"Not really because since it was too long, I got bored and since the sun is too hot and the scheduled was in the afternoon so I felt sleepy and mathematics is not my type"

[Students_CAS\CE_B; Position: 93 - 93; 5/22/2020 02:03; Weight score: 0]

6.9.7.1. makes student sleepy

1.

"The schedule of our class in Mathematics is a "holy hour" as we call it. It is in the afternoon and I felt sleepy."

[Students_CAS\CE_M; Position: 43 - 43; 5/22/2020 01:14; Weight score: 0]

2.

"Not really because since it was too long, I got bored and since the sun is too hot and the scheduled was in the afternoon so I felt sleepy and mathematics is not my type"

[Students_CAS\CE_B; Position: 93 - 93; 5/22/2020 02:03; Weight score: 0]

6.9.8. full student load

1.

"Yes, I tried but the schedule was really hectic. We were loaded with 32 units that is why I had no time to review nor for advance study."

[Students_CET\CC_R; Position: 33 - 33; 5/21/2020 23:17; Weight score: 0]

6.9.9. requires review

1.

"It is hard because you need to review and if you didn't review you will not be able to answer it."

[Students_COM\CB_L; Position: 55 - 55; 5/21/2020 23:10; Weight score: 0]

6.9.10. difficulty towards some topics

1.

"Second, not all lessons found in the syllabi is easy."

[Students_COED\CA_P; Position: 58 - 58; 5/21/2020 22:27; Weight score: 0]

6.9.10.1. addressed by self motivation

1.

"While for the difficult lessons, it just motivates us to study harder just to understand the topics by ourselves. This usually happens when a quiz or an exam is coming."

[Students_COED\CA_P; Position: 60 - 60; 5/21/2020 22:28; Weight score: 0]

2.

"That motivation pushes me to not only appreciate the subject but also have an appetite and eager to learn as Mathematics is helpful in many ways."

[Students_COM\CB_M1; Position: 35 - 35; 5/21/2020 22:42; Weight score: 0]

6.9.11. overlapping activities of the university

1.

"First, time is our biggest enemy. Sometimes our learnings are compromised due to the activities that the university has"

[Students_COED\CA_P; Position: 58 - 58; 5/21/2020 22:27; Weight score: 0]

6.9.11.1. addressed by provisions of advance topics

1.

"In times wherein, our teacher couldn't meet us, she just gives us topics to be studied in advance"

[Students_COED\CA_P; Position: 60 - 60; 5/21/2020 22:28; Weight score: 0]

6.9.12. cheating

1.

"I don't have time to review and also another factor that triggers me to cheat is that I don't get the discussion about the lesson because the easy examples of problem-solving that was provided by our teacher to us is different from what is asked to be solved in the quiz and I am having a hard time to solve the problem."

[Students_COED\CA_M; Position: 54 - 54; 5/21/2020 21:37; Weight score: 0]

2.

"The fact that I did not review for the quiz, I choose the easiest way to gain answer and it is to cheat because the quiz that was given to us was very difficult. Before the quiz started I already have this mindset and realized that there's no other way around, I don't have a choice but to copy."

[Students_COED\CA_M; Position: 64 - 64; 5/21/2020 21:37; Weight score: 0]

3.

"They have a lots of complaints while others are just trying their best in understanding the questions and some of them are just copying from others."

[Students_COM\CB_L; Position: 39 - 39; 5/21/2020 23:08; Weight score: 0]

4.

"I: Did you cheat during your activities and quizzes?
R: Honestly yes, we turn our individual quiz to a group quiz."

[Students_CCIS\CD_J; Position: 42 - 43; 5/22/2020 01:31; Weight score: 0]

5.

"We cooperate to each other like brainstorming, of course we cannot avoid the fact that we also cheat"

[Students_CAS\CE_B; Position: 53 - 53; 5/22/2020 01:59; Weight score: 0]

6.9.12.1. processed to learn

1.

"es, our lesson is not just math my teacher would relate some of the mathematical problems in real life scenarios . I also learned that cheating not really good but when I cheat I would try to understand how did I come up with those answers and also collaboration , through this I can share my answer and ideas with my classmates."

[Students_CCIS\CD_J; Position: 47 - 47; 5/22/2020 01:31; Weight score: 0]

6.9.12.2. percieved to be good

1.

"R: For me yes, sometimes cheating is good in a way that I should know how did I arrive in that answer."

[Students_CCIS\CD_J; Position: 45 - 45; 5/22/2020 01:31; Weight score: 0]

6.9.13. influence of classmates behavior

1.

"So, honestly, the attitude of my classmates did influenced me in a way that whenever they're having a hard time answering or they didn't have enough time to review on a certain activity specifically on quizzes they also use to cheat or just rely on the answers of our other classmate, then as for me, I would do the same thing for me to not to fail on the course"

[Students_COED\CA_M; Position: 58 - 58; 5/21/2020 21:36; Weight score: 0]

2.

"I don't ask assistance to my teacher because, I didn't want to be rejected and told to be rude or "pabibo" to my classmates."

[Students_COED\CA_M; Position: 82 - 82; 5/21/2020 21:55; Weight score: 0]

6.9.13.1. boost self esteem

1.

"It's infectious actually, because if you can see that your classmates are paying attention to the discussion, it makes you pay attention to the discussion, too."

[Students_COED\CA_P; Position: 54 - 54; 5/21/2020 22:25; Weight score: 0]

2.

"what it's really a good thing that the classroom culture was motivating and friendly."

[Students_CET\CC_R; Position: 46 - 46; 5/21/2020 23:21; Weight score: 0]

3.

"At first, we feel shy to share each other's idea and feel pressure and afraid of criticisms if we got a wrong answer. But later on, each ability starts to show up. We are now comfortable to share our answers to everybody . But we do group study now rarely."

[Students_CET\CC_A; Position: 34 - 34; 5/21/2020 23:36; Weight score: 0]

6.9.13.2. infectious

1.

"It's infectious"

[Students_COED\CA_P; Position: 54 - 54; 5/21/2020 22:24; Weight score: 0]

6.9.13.3. lowers self esteem

1.

"It is not good of course, honestly speaking I feel embarrass when someone says like that. My self-esteem and confidence will decrease and also I am not motivated."

[Students_COED\CA_M; Position: 84 - 84; 5/21/2020 21:56; Weight score: 0]

2.

"Well, some of my classmates say that they are "pabibo" but I don't. I mean all of us have fields and areas that we are good at. And it is not their problem that they excel in Mathematics. It just happened that they are good, and we are not. Actually, I even envy them."

[Students_COED\CA_P; Position: 52 - 52; 5/21/2020 22:24; Weight score: 0]

3.

"Likewise, if you see your classmates become inattentive, you also feel the same."

[Students_COED\CA_P; Position: 54 - 54; 5/21/2020 22:25; Weight score: 0]

4.

"When I attempt to raise a question or recite they will clap their hands as soon as I stand and I didn't even start talking or asking. And also, you have to be sure about what you will say and if not, they will surely laugh at you."

[Students_CET\CC_P; Position: 37 - 37; 5/22/2020 00:12; Weight score: 0]

5.

"I'm a shy type person. And I'm afraid that my classmates will make fun of me and call me pabibo."

[Students_CAS\CE_M; Position: 49 - 49; 5/22/2020 01:15; Weight score: 0]

6.9.13.3.1. teasing: Pabibo

1.

"Like what I said earlier, it's because they are closing their doors in learning the subject. Also, they afraid that their classmates might tease and laugh at them. Their fright always overshadows their interest in learning the subject."

[Students_COED\CA_P; Position: 56 - 56; 5/21/2020 22:26; Weight score: 0]

2.

"When I attempt to raise a question or recite they will clap their hands as soon as I stand and I didn't even start talking or asking. And also, you have to be sure about what you will say and if not, they will surely laugh at you."

[Students_CET\CC_P; Position: 37 - 37; 5/22/2020 00:12; Weight score: 0]

3.

"I'm a shy type person. And I'm afraid that my classmates will make fun of me and call me pabibo."

[Students_CAS\CE_M; Position: 49 - 49; 5/22/2020 01:15; Weight score: 0]

4.

": I just laughed at them and ignore them. But it's actually the reason why I don't raise question in class."

[Students_CAS\CE_M; Position: 51 - 51; 5/22/2020 01:15; Weight score: 0]

5.

"Nope, I just let it go because if I clarify it directly to our teacher, probably my classmates will laugh at me"

[Students_CAS\CE_B; Position: 45 - 45; 5/22/2020 01:57; Weight score: 0]

6.9.14. affects perfromance in examinations

1.

"R: Of course if I were spending more time finishing my projects then the tendency is I will just copy answers to my seatmate because I don't have time to review and also another factor that triggers me to cheat is that I don't get the discussion about the lesson because the easy examples of problem-solving that was provided by our teacher to us is different from what is asked to be solved in the quiz and I am having a hard time to solve the problem. That's why I tend to cheat or just copy answer from my classmate."

[Students_COED \ CA_M; Position: 54 - 54; 5/21/2020 21:33; Weight score: 0]

2.

"R: Sometimes if I don't have time to review and if I'm not sure with my answers and sometimes I noticed that my classmates do the same thing that I did whenever they're not also prepared for the quiz."

[Students_COED \ CA_M; Position: 56 - 56; 5/21/2020 21:37; Weight score: 0]

3.

"The fact that I did not review for the quiz, I choose the easiest way to gain answer and it is to cheat because the quiz that was given to us was very difficult. Before the quiz started I already have this mindset and realized that there's no other way around, I don't have a choice but to copy."

[Students_COED \ CA_M; Position: 64 - 64; 5/21/2020 21:36; Weight score: 0]

6.9.15. more time spent working on out of school activities

1.

"R: After school hours, I spend my remaining time making my project and I don't mind if I don't get enough amount of sleep."

[Students_COED \ CA_M; Position: 52 - 52; 5/21/2020 21:32; Weight score: 0]

2.

"I did my other school works, like assignments and projects"

[Students_CAS \ CE_M; Position: 25 - 25; 5/22/2020 01:10; Weight score: 0]

6.9.16. timing of course work

1.

"R: Yes, as for me the set deadline is reasonable enough for me to not to pay attention to the course because for example another factor that makes me absent minded during the discussion of the course is that, as what I've remember our teacher give a projects, activities or assignments in times that teacher is not around. Of course, as a student we have this mindset that if the teacher is not around we have the opportunity to finish our other paper works or projects and on the contrary the effect of this is I don't spend more time paying attention to the course."

[Students_COED\CA_M; Position: 48 - 48; 5/21/2020 21:31; Weight score: 0]

6.9.17. unable to comply correctly

1.

"R: The project was about to make a portfolio or compilation of our written quizzes and activities under the subject area of Mathematics and that project that was given to us is quite difficult, because we have this principle that we won't be able to make an adequate project if the given time is not enough for us to finish it or to prepare for it, specifically, that some of the quizzes and written activities that we had got lost and misplaced. Also, another factor that the given time is not enough for us and that stressing me out is that, sometimes I forget to look for the missing papers (quizzes) because I was bombarded with lots of school works and other things that's need to be done and I have this mannerism that sometimes I make my projects when the deadline is fast approaching. Honestly, it does not contribute to us in understanding the course. Moreover, it only makes us more irresponsible because we tend to just set aside or not give more attention in learning or understanding the course."

[Students_COED\CA_M; Position: 44 - 44; 5/21/2020 21:30; Weight score: 0]

2.

"Rushing making the projects. It affect me so much and it is not good because I wasn't able to make it correctly and perfectly, there are parts that I copied on the internet and copied from my classmates. Because of copying I have no learnings and I regret it."

[Students_CAS\CE_V; Position: 41 - 41; 5/22/2020 01:44; Weight score: 0]

6.9.18. being late

1.

"Of course, I always set time before I go to bed and wake up with an alarm. But there are instances that there are paper works, projects and

assignments not just on this subject but also from the other subjects. There are times I have to finish the projects due to deadline and assignments to pass next meeting plus to review for the quizzes if there's any. These are the most common reason why I stay up late at night and sometimes forgot to check the time and wake up very late the next morning."

[Students_COED\CA_B; Position: 39 - 39; 5/21/2020 20:51; Weight score: 0]

2.

"Knowing that you are from San Juaquin, is there any possibility that you get late in your Mathematics in the Modern World class?
R: There is. Almost every time."

[Students_CET\CC_P; Position: 76 - 77; 5/22/2020 00:15; Weight score: 0]

6.10. College

6.10.1. CAS

1.

"Bachelor of Science in Environmental Science."

[Students_CAS\CE_M; Position: 11 - 11; 5/22/2020 01:07; Weight score: 0]

2.

"Bachelor of Science in Environmental Science (BSES)"

[Students_CAS\CE_V; Position: 13 - 13; 5/22/2020 01:38; Weight score: 0]

3.

"Bachelor of Science in Agriculture and Technology"

[Students_CAS\CE_B; Position: 19 - 19; 5/22/2020 01:55; Weight score: 0]

6.10.2. CCIS

1.

"Bachelor of Science and Information Technology"

[Students_CCIS\CD_A1; Position: 8 - 8; 5/22/2020 00:23; Weight score: 0]

2.

"BSCS"

[Students_CCIS\CD_A2; Position: 8 - 8; 5/22/2020 00:45; Weight score: 0]

3.

"Bachelor of Science in Information Technology"

[Students_CCIS\CD_J; Position: 3 - 3; 5/22/2020 01:16; Weight score: 0]

6.10.3. CET

1.

"Bachelor of Science in Civil Engineering."

[Students_CET\CC_R; Position: 15 - 15; 5/21/2020 23:12; Weight score: 0]

2.

"College of Engineering and Technology taking Civil Engineering."

[Students_CET\CC_A; Position: 10 - 10; 5/21/2020 23:28; Weight score: 0]

3.

"(Bachelor of Science in Electrical Engineering)"

[Students_CET\CC_P; Position: 11 - 11; 5/21/2020 23:53; Weight score: 0]

6.10.4. COM

1.

"Bachelor of Science and Tourism Manangement."

[Students_COM\CB_M1; Position: 9 - 9; 5/21/2020 22:34; Weight score: 0]

2.

"Bachelor of Science In Tourism Management"

[Students_COM\CB_M2; Position: 2 - 2; 5/21/2020 22:42; Weight score: 0]

3.

"Bachelor of Tourism Management."

[Students_COM\CB_G; Position: 11 - 11; 5/21/2020 22:57; Weight score: 0]

4.

"Bachelor of Science in Office Administration"

[Students_COM\CB_L; Position: 4 - 4; 5/21/2020 23:04; Weight score: 0]

6.10.5. COED

1.

"Bachelor of Secondary Education Major in English"

[Students_COED\CA_B; Position: 11 - 11; 5/21/2020 20:18; Weight score: 0]

2.

"Bachelor of Elementary Education (BEED)"

[Students_COED\CA_M; Position: 10 - 10; 5/21/2020 21:09; Weight score: 0]

3.

"Bachelor of Secondary Education- Major in Science"

[Students_COED\CA_P; Position: 28 - 28; 5/21/2020 21:58; Weight score: 0]

6.11. Performance

6.11.1. Above Average (1.9 - 1.0)

1.

"1.4"

[Students_COED\CA_B; Position: 13 - 13; 5/21/2020 20:21; Weight score: 0]

2.

"2.6"

[Students_COED\CA_P; Position: 32 - 32; 5/21/2020 22:33; Weight score: 0]

3.

"1.4"

[Students_COM\CB_L; Position: 15 - 15; 5/21/2020 23:05; Weight score: 0]

4.

"1.5"

[Students_CET\CC_A; Position: 14 - 14; 5/21/2020 23:28; Weight score: 0]

6.11.2. Average (2.5 - 2.0)

1.

"2.1"

[Students_COED\CA_M; Position: 12 - 12; 5/21/2020 21:10; Weight score: 0]

2.

"2.1."

[Students_COM\CB_G; Position: 13 - 13; 5/21/2020 22:57; Weight score: 0]

3.

"2.1"

[Students_CET\CC_R; Position: 17 - 17; 5/21/2020 23:13; Weight score: 0]

4.

"2.04"

[Students_CET\CC_P; Position: 13 - 13; 5/21/2020 23:54; Weight score: 0]

5.

"87"

[Students_CCIS\CD_A1; Position: 10 - 10; 5/22/2020 00:23; Weight score: 0]

6.

"2.3"

[Students_CCIS\CD_A2; Position: 10 - 10; 5/22/2020 00:44; Weight score: 0]

7.

"2.3"

[Students_CCIS\CD_J; Position: 9 - 9; 5/22/2020 01:16; Weight score: 0]

8.

"2.4"

[Students_CAS\CE_V; Position: 15 - 15; 5/22/2020 01:38; Weight score: 0]

9.

"2.0"

[Students_CAS\CE_B; Position: 21 - 21; 5/22/2020 01:55; Weight score: 0]

6.11.3. Below Average (3.0-2.6)

1.

"2.7"

[Students_COM\CB_M2; Position: 10 - 10; 5/21/2020 22:42; Weight score: 0]

2.

"3.00"

[Students_CAS\CE_M; Position: 13 - 13; 5/22/2020 01:07; Weight score: 0]

6.11.4. Failed

1.

"5.0"

[Students_COM\CB_M1; Position: 11 - 11; 5/21/2020 22:35; Weight score: 0]

CURRICULUM VITAE

CURRICULUM VITAE

Name	:	Richard N. Verdeflor
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Office Address	:	Northwest Samar State University, Calbayog City
Position	:	Instructor III
Father's Name	:	Patricio A. Verdeflor
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EDUCATIONAL BACKGROUND

Elementary	:	San Jorge Central Elementary School
High School	:	St. Michael's High School
Undergraduate	:	Samar College Course: Bachelor in Secondary Education Major in Mathematics
Graduate	:	Samar State University Master in Education Major in Mathematics

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