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Factors that Influence Grade 12 Stem Students in Choosing Science, Technology, Engineering, and Mathematics Strand

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Abstract: *This study explored the key factors that influenced Grade 12 STEM students in selecting the Science, Technology, Engineering, and Mathematics (STEM) strand. Hence, this study provided an analysis of the factors that influenced Grade 12 STEM (Science, Technology, Engineering, and Mathematics) students in choosing the STEM (Science, Technology, Engineering and Mathematics) strand and to analyze the experiences of the Grade 12 STEM (Science, Technology, Engineering and Mathematics) students. This study was a qualitative phenomenological study in which the researchers' employed questionnaires and interviews to investigate Grade 12 students' perceptions and experiences with STEM (Science, Technology, Engineering, and Mathematics) strands. The sample population of this research was composed of 10 out of the 40 students of the STEM (Science, Technology, Engineering, and Mathematics) strand from Diplahan National High School. The results implicated many factors that influenced them to engage in the STEM (Science, Technology, Engineering, and Mathematics) strand, but among those factors the influence of the peers and the profession and passion most stood out prominently. The findings of this study may then serve as a fundamental basis mainly for the aspiring STEM (Science, Technology, Engineering, and Mathematics).*

Keyword: Grade 12 STEM Students, Science, Technology, Engineering, and Mathematics Strand, Peers, Passion

Introduction

The 2017-2018 marked the implementation of the DepEd's K12 program, also known as RA 10533, or the Basic Education Across the Nation, a 2-year senior-high school level consisting of grades 11 and 12 was added. (Isabel Pefianco- Martin et al., 2012) states that the acquisition of the following 21st-century skills is the learning objective in the new "K to 12" curriculum: 1) learning and innovation skills; 2) IT and media skills; 3) practical communication skills; and 4) life and career skills. The "K to 12" Program was designed to support secondary school students, preparing them for higher education and employment opportunities.

The implementation of the Philippines' K-12 Basic Education Program aims to adjust the Philippine schooling system to global norms and better prepare Filipino students for school and the labor force. The new policy prioritizes higher education preparation, eligibility for admission to domestic and international higher education institutions, and immediate employability upon graduation, all contributing to a holistically developed Filipino (Okabe, 2013).

Selecting a strand to take in senior high is a crucial decision for students and must be carefully considered because of the long-term implications for an individual's future career. It is essential to choose a strand since it will act as their training ground for their chosen career and jobs. As Tortor et al. (2019) stated, students make a firm decision on which strand to pursue after asking their parents and peers and considering their financial situation and chosen careers.

Several factors influence how an individual selects or decides on their strand. A factor influences an event, decision, or situation in one's life (Alentijo et al., 2023). Science, Technology, Engineering, and Mathematics Strand (STEM) is a specialized educational track that prepares students for careers in these fields. Its goal is to provide students with the necessary skills, knowledge, and experience to excel in science, mathematics, and technology-related fields.

In recent years, the Academic Strand of STEM (Science, Technology, Engineering, and Mathematics) in Senior High School has grown popular with students. Its emphasis on critical thinking, problem-solving, and invention has drawn a varied group of young minds. However, the decision to pursue this rigorous academic path is not taken in isolation. Instead, it is influenced by a variety of factors that shape students' perceptions and decisions.

Others may find these courses intimidating and prefer a different academic path. Parents also play an important role in their children's educational path. Their educational background, morals, and aspirations have a huge impact on their children's choices. Parents who are passionate about these fields of study are more likely to urge their children to follow the Academic Strand. Peers also have an important influence on students' decisions. Friends and classmates can offer vital insights and support, making pursuing the Academic Strand of Science, Technology, Engineering, and Mathematics (STEM) more encouraging.

Academic experiences such as engaging Science technology, Engineering, and Mathematics-related activities, projects, or competitions can pique students' interest and lead them to pursue this academic path. Moreover, parental occupation, particularly in a Science, Technology, Engineering, and Mathematics-related field, can affect youngsters' choices. Exposure to their parents' professional experiences can drive students to pursue the Academic Strand of Science, Technology, Engineering, and Mathematics.

This study aims to investigate these factors, with a focus on empowering educators, policymakers, and stakeholders to support Grade 12 students in Diplahan National High School in making informed and empowered decisions about the Science,

Technology, Engineering, and Mathematics strand. The Grade 12 level is chosen for this study because it represents a pivotal time for students to make decisions about their future academic and career paths. By analyzing the factors that influence Grade 12 students' decisions to pursue the Science, Technology, Engineering, and Mathematics strand, targeted interventions and initiatives can be developed to improve participation and diversity in Science, Technology, Engineering, and Mathematics disciplines.

Statement of the Problem

This study aimed to discover the factors that influence Grade XII- Science, Technology, Engineering, and Mathematics (STEM) students in Diplahan National High School at Diplahan Zamboanga Sibugay.

Specifically, this study sought to answer the following questions:

1. What are the factors that influence students to choose Science, Technology, Engineering, and Mathematics Strand?
2. Why should students consider the factors when choosing the Science, Technology, Engineering, and Mathematics Strand?
3. How to address the factors that influence Grade XII- Science, Technology, Engineering, and Mathematics students in choosing STEM (Science, Technology, Engineering, and Mathematics) strand?

Results

This chapter presents the results and discussion, which include the presentation, analysis, and interpretation of the validation on the Factors that Influence Grade 12 STEM Students in Choosing Science, Technology, Engineering, and Mathematics Strand.

Experiences of Grade 12 STEM (Science, Technology, Engineering, and Mathematics) Students

As we interviewed different perspectives of Grade 12 students, we met and listened to their experiences as students under the STEM (Science, Technology, Engineering, and Mathematics) curriculum. Using the information and statements given by each respondent during our interview where each theme arises in each response reflecting their experiences and perspectives as Grade 12 students.

Time is Gold. As we gathered data from our interviews with our respondents. One to two respondents shared the theme in terms of time value in their experience as Grade 12 Students which can be draining and exhausting to them especially when they cram a lot in different subjects. In their statements, they expressed the struggles of time management and how it reached the level of limit that contributed to their exhaustion. (SR1 & SR3)

"Kuan siya time consuming, tapos exhausting at the same time. Tapos kanang murag niabot naka sa point saimong kinabuhi nga sauna ganahan kayka mo skwela pero niabot naka sa point saimong kinabuhi nga dili naka ganahan mo sulod ug skwelahan kay tungod gikapoy na gyud kayka, gusto nalang ka matulog ug wala nakay lain gusto himoon."

(It is time-consuming and at the same time exhausting. It is like reaching a point in your life where you used to enjoy going to school, but then you reach a point where you do not want to go to school anymore because you are just too tired and all you want to do is sleep without any other desire.)

(SR1 03/27/24)

SR1 expressed the frustrations experienced as a Grade 12 STEM (Science, Technology, Engineering, and Mathematics) student, and how time consumption reached the limit of exhaustion felt by the respondent. It was also emphasized in the respondent's statement how tiring it was and how sleep became the most desired temptation. It delves into the high-pressure world of high school students, particularly in competitive academic environments, where the pursuit of success can lead to exhaustion and burnout (Robbins, A., 2023)

"Dili man kay siya challenging pero sige jud mig cram tapos ano kanang ang mga subject specially ang physics lisod jud kaayo siya kay of course numbers and sa language and communication."

(It is not that it is challenging, but we often cram a lot. Especially with subjects like physics are tough because of course numbers and language and communication.)

(SR3 03/27/24)

SR3 also added that some subjects also contribute to their struggles under the STEM (Science, Technology, Engineering, and Mathematics) curriculum where elements of numbers, language, and communication are present in the course of study of their subject. It shows that one of the challenges students in STEM (Science, Technology, Engineering, and Mathematics) majors experience is difficulty in every subject. Furthermore, earlier research revealed that students encounter difficulties in a variety of STEM (Science, Technology, Engineering, and Mathematics) subjects, including science, (Ralph & Lewis, 2018), math (Nelson & Powell, 2018), engineering (Saterbak et al., 2016), and technology (Jimoh & Hassan, 2020).

Rising to the Challenges. As we gathered data from one to two respondents, we met and listened to optimistic statements from their perspectives as Grade 12 STEM (Science, Technology, Engineering, and Mathematics) students. Using the information from the interview, we delved more into the exciting world of the STEM (Science, Technology, Engineering and Mathematics) curriculum which explains how they arose from the challenges inside of the STEM (Science, Technology, Engineering and Mathematics) curriculum. (SR4 & SR5)

"So far, akoang maingon sa grade 12, dili na siya mas bug at compared sa grade 11."

(So far, in my experience in grade 12, it is easier than grade 11.)

(SR4 3/27/24)

SR4 expressed that they found their current academic year less challenging than grade 11. This sentiment suggests a perceived decrease in difficulty levels as students' progress through their high school education. Improve students' perception of their own capacity, specifically the general academic skills required to improve progress made at school; e.g., taking actions to bridge some basic gaps in training that some students may still have from former courses, and are necessary to make progress in the subject; or evaluate and recognize the progress made by students since the evaluative feedback that students receive contribute to develop their competence. (Deci and Ryan, 1985, 2000).

"Fun tapos challenging."

(It is fun and challenging.)

(SR5 3/27/24)

SR5 finds their studies both enjoyable and challenging, engaging in stimulating coursework and hands-on projects that cultivate their passion for (STEM) Science, Technology, Engineering, and Mathematics. According to Griffin (2005), David Manson‟s eighteenth-century concept of "pedagogy of enjoyment," asserts that learning should be fun, playful, purposeful, and offer "enjoyable work imbued with creativity" (Griffin, 2005,). Thus, learning and enjoyment are closely related and intertwined (Lumby, 2011). There are a number of factors, described in the literature, that can contribute to enjoyable learning experiences, including feeling a connection to the content, having an effective instructor, participating in active learning, and engaging in learning achievement.

Respondent's Reasons in Choosing STEM (Science, Technology, Engineering And Mathematics) Strand

As we interviewed different perspectives of Grade 12 students, we met and listened to their experiences as students under the STEM (Science, Technology, Engineering, and Mathematics) curriculum. Using the information and statements given by each respondent during our interview where each theme arises in each response reflecting Reasons in Choosing STEM (Science, Technology, Engineering And Mathematics) Strand.

Course alignment. We gathered data from our interviews with our respondents. One to three respondents shared the significant factors that influenced them in choosing the STEM (Science, Technology, Engineering, and Mathematics) strand highlighting the importance of their course alignment with the different departments offered by the STEM (Science, Technology, Engineering, and Mathematics) curriculum. (SR1, SR3, & SR5)

"The reason is inclined siya sa gusto nako itake nga course pag college nako."

(Another reason is that it aligns with the course I want to take in college.)

(SR1 3/27/24)

SR1 conveyed that one of the reasons why she chose to pursue STEM (Science, Technology, Engineering, and Mathematics) is because it aligns with the course she wants to pursue in college. They believe that a background in STEM (Science, Technology, Engineering, and Mathematics) will provide her with a strong foundation and the necessary skills to excel in her chosen field of study. Graduating high school students are bound to choose what course to take in college. They face the dilemma of having to decide on future career paths. The process of choosing a course naturally begins at a young age (Maguire & Lay, 1981).

"The reason why I choose this strand of course related siya sakoa ang course kuhaon sa college."

(The reason why I chose this strand is, of course, it is related to my chosen course in college.)

(SR3 3/27/24)

SR3 emphasizes that the reason why she chose to be in the STEM (Science, Technology, Engineering, and Mathematics) is that it is related to the course they want to pursue in college. Their statement highlights the awareness of the growing importance and impact of choosing the right track to be involved in, thus this could have a big impact on their future. Graduating high school students face one of the most crucial decisions in their lives, and that is future career decisions. These students face the fact that this certain adjudication will decide their future (Martin, 2010).

"Kanang align siya sa akong course for college."

(It aligns with my college course.)

(SR5 3/27/24)

SR5 conveyed that one of the primary reasons why they choose to pursue STEM (Science, Technology, Engineering, and Mathematics) is because it aligns with the course they wanted to pursue for their higher education. Choosing the right course wisely is important in achieving academic success in college (Martin, 2010).

Purposeful choices. As we enter different perspectives from each respondent each statement contrasts and supports each other. One student highlighted the evolution of purpose as the factors that influence choosing the STEM (Science, Technology, Engineering, and Mathematics) strand. The information given by the interview talks about the evolution of purposeful choices and how the experiences before, during and the present affected their choice. (SR2)

"First nako na reason ngano nag STEM ko kay gusto nako mag nursing pero since na dunggan sad nko nga naa sa STEM ang calculus og general mathematics and duha ka math na siya and favourite nako before mas na encourage ko mag i take chance nga mag STEM and also mas ma dunggan nimo frequently sa mga students nga pag STEM mas daghan oppurtunities, pag STEM kay mas focus sa mga teachers, specially kay daghan og mga majors, bug at jud akoa major since science man siya tapos sa research pod kay medical incline pod ang kanang i require."

(My first reason for choosing STEM is that I wanted to pursue nursing. However, since I realized that calculus and general mathematics are part of STEM, and those are my favorite subjects, I was further encouraged to take a chance in STEM. Also, you often hear from students that there are more opportunities in STEM. In STEM, the teachers are more focused, especially since there are many majors. My major is science, and research is also required because it is medical-inclined.)

(SR2 3/27/24)

SR2 respondent's journey towards choosing the STEM (Science, Technology, Engineering, and Mathematics) strand began with a passion for nursing. Initially drawn to the field due to a desire to pursue healthcare, the realization that calculus and general mathematics are integral components of STEM (Science, Technology, Engineering, and Mathematics) further solidified

their interest. The respondent's tendency for these subjects served as a catalyst, curiosity, and enthusiasm for STEM (Science, Technology, Engineering, and Mathematics) disciplines. Additionally, the perception of abundant opportunities within STEM (Science, Technology, Engineering, and Mathematics), echoed by fellow students, acted as a motivating factor. Self-efficacy is positively related to student academic performance and science self-efficacy has been shown to impact student selection of science-related activities, which impacts their ultimate success and helps maintain interests (Britner and Pajares 2006; Parker et al. 2014; Richardson et al. 2012).

Chic and sleek. In the interview, we gathered interesting information on how this respondent was influenced in choosing the STEM (Science, Technology, Engineering, and Mathematics) strand. The response was rather peculiar but understandable considering they each have different perspectives as Grade 12 Students. (SR4)

"Asitg siya tas sosyal"

(It is cool and classy also)

(SR4 3/27/24)

SR4 stated that being in the Science, Technology, Engineering, and Mathematics (STEM) strand is cool to hear and classy. This indicates an appreciation for the intellectual challenge and practical skills offered by STEM education, while also associating it with a sense of modernity and style. Gottfredson's theory, occupational aspirations are a reflection of one's self-concept. This theory describes that students become attracted to certain specializations under the strand they take. According to this theory, self-concept is the key to specialization selection. It pertains that student viewed the strand as suitable for their satisfaction.

Significant Factors That Influenced the Respondent's Choice of Strand

As we interviewed different perspectives of Grade 12 students, we met and listened to their experiences as students under the STEM (Science, Technology, Engineering, and Mathematics) curriculum. Using the information and statements given by each respondent during our interview where each theme arises in each response reflecting Significant Factors That Influenced the Respondent's Choice of Strand.

Profession and Passion. In this interview, statements from one to three respondents correspond to both ideas even though both passions contrast each other highlighting different evolution of factors during and the present experiences. The data constructed in the interview explains that desired professions played a vital role as the main factor in choosing the STEM (Science, Technology, Engineering, and Mathematics) strand while contrasting passions and new ideas in their theoretical perspectives. (SR1, SR2, & SR3)

"It is related to my dream course, on the other hand, naa diri ang mga major which is ang general biology, physics, chemistry nga those are the learning areas nga gusto gyud nako itake-up, I am interested in doing those."

(It is related to my dream course, on the other hand, this is where the major subjects that I am interested in are general biology, physics, and chemistry. Those are the learning areas that I want to take up.)

(SR1 3/27/24)

The statement elaborated on the reasons why the respondent chose to be engaged in the STEM (Science, Technology, Engineering, and Mathematics strand, one of which is due to the course SR1 wants to pursue in college. The statement also emphasizes that due to the respondent's interest in the major subjects in the strand, pushes her to be involved in the STEM (Science, Technology, Engineering, and Mathematics strand. This shows that the responder values her interest over other factors, which is essential for the respondent's future. Tai et al. (2006) found that students often choose STEM courses and career paths based on their career aspirations and perceived job opportunities. Factors such as salary potential, job security, and alignment with personal interests play a role in students' decisions.

"Kanang connected siya saking course which is ang nursing, as well as mga friend nako nga gikan sa STEM madunggan nko nga pag STEM kay kanang nindot ang opportunity, pero sa akoang ano, pag sulod nako sa STEM tinoud siya nga daghan nga opportunity pero, bug at gihapon siya sa amoa as a student though, since students man mi but at kay siya kay daghan mig

kinahanglan nga I passa nga requirements tapos ang ang mga requirements need siya og further research and mas wider knowledge, specially kina hanglan nimo ma meet ang expectation tawo."

(It is connected to my course, which is nursing. Also, from my friends who are from STEM (Science, Technology, Engineering, and Mathematics), I heard that there are good opportunities. But for me, upon entering STEM (Science, Technology, Engineering, and Mathematics), I found that there are indeed many opportunities, but it is still challenging for us as students. Since we are students, it is challenging because we have many requirements that need to be passed, and these requirements require further research and broader knowledge, especially to meet people's expectations.)

(SR2 3/27/24)

SR2 conveyed that one of the reasons why she chose to take the STEM (Science, Technology, Engineering, and Mathematics) strand is because it is related to her course, as the perspectives of her friends in STEM (Science, Technology, Engineering, and Mathematics) that pushes her to take the STEM (Science, Technology, Engineering, and Mathematics) strand. However, upon entering the strand, she found out that indeed there are a lot of opportunities for the respondents could benefit from the STEM (Science, Technology, Engineering, and Mathematics) strand. For them, it is challenging because there are a lot of requirements that need to be passed, which also require a wide range of knowledge. This highlights that even though the strand requires a lot of time and knowledge, after all the benefits we could gain could help us in our future. Proficiency in science and expectations to pursue a science career during the adolescent years are especially important precursors to the subsequent likelihood of completing a STEM degree for college. (Robert Tai, 2006)

"Same lang related siya sakong studies then maka help siya sa akoang future course kuhaon."

(It is the same, it is related to my studies and will help with my future course.)

(SR3 3/27/24)

SR3 stated the reasons why they take the STEM (Science, Technology, Engineering, and Mathematics) strand it is related to their studies. SR3 also stated that being a STEM (Science, Technology, Engineering, and Mathematics) student can help them in their future course in college. STEM Sparks Interest in Future Careers. STEM learning also connects kids with different potential careers. Activities can highlight the skills and subjects that go into various projects, helping show students how many fields and jobs apply to their STEM education. (Raven Cramer, 2024)

Beneficial Opportunities. In this interview, we met and listened to one respondent who shared the target factors that can be used in future advances. These factors can help a graduating Grade 12 student in choosing preferred courses in entering college with entrance exams which greatly influenced the respondent's choice. (SR4)

"Naa man gud siyay advantage, pag mo take kag college entrance exam ang mga coverage man gud niya science ug math."

(There is an advantage since when you take college entrance exams, the coverage includes science and math.)

(SR4 3/27/24)

Being involved in STEM (Science, Technology, Engineering, Mathematics) has a lot of benefits, SR4 stated that being involved in this strand could help you have an idea about the coverage of the entrance exam. These examinations often encompass a wide array of subjects, including science and math. Thereby increasing their chances of scoring higher and gaining admission to their desired colleges or universities. Engaging in this academic strand offers numerous advantages that can significantly influence our future pathways. College admission exams are standardized examinations that determine students' chances of pursuing a degree in an academic institution (Bai, Chi, & Qian, 2014). Studies have been conducted to understand whether the result of admission exams would mean success in completing their degree. Some studies have shown that a good admission test can predict the students' academic ability to succeed in his/her chosen program.

Impacts on Respondents by Significant Factors in Choosing the STEM Strand

As we interviewed different perspectives of Grade 12 students, we met and listened to their experiences as students under the STEM (Science, Technology, Engineering, and Mathematics) curriculum. Using the information and statements given by each

respondent during our interview where each theme arises in each response reflecting each significant Factors in Choosing the STEM Strand that have a big impact on their life.

Skill Improvement. As we met and listened to each perspective, one to three respondents parallel each other in terms of skill improvement. The information we gathered from the respondents similarly targets specific subject development that helps with the desired course which aligns with the major subjects under the STEM (Science, Technology, Engineering, and Mathematics) curriculum. (SR1, SR2, & SR3)

"Inclined siya sa akoang itake-up nga future course, kay syempre if ever maka nursing ko dako na kayong tabang kay naa biya diri ang mga sciences, if ever pud mag teacher ko dako ra gihapon siyag tabang kay naa ra diri ang mga subjects."

(STEM is inclined with my future course, because of course if I ever get into nursing, it will be a big help because the sciences are here. If I ever become a teacher, it will still be a big help because the subjects are here.)

(SR1 3/27/24)

SR1 stated that studying STEM (Science, Technology, Engineering, and Mathematics) aligns perfectly with the respondent's future aspirations. Whether SR1 pursues a career in nursing or teaching, the foundational knowledge and skills provided by STEM subjects will be invaluable. We could analyze that in the respondents' choices of professions, STEM serves as a big impact foundation that enhances their potential for success and innovation. According to the research conducted by Dr. Setiabud, much of the work in the future will require a basic understanding of STEM, so this is what drives students interested in STEM. Students at the high school level must start preparing for life goals, and one of them is choosing a career.

"Iyang help sa akoa kay para mo develop akong knowledge sa akoang future course"

(It will help me develop my knowledge for my future course.)

(SR2 3/27/24)

SR2 conveyed that the STEM strand could help them develop and widen their knowledge about the subjects in the course they want to pursue in college. This shows that SR2 is aware of the benefits they could get if they engage in the STEM (Science, Technology, Engineering, and Mathematics) strand. This foundational knowledge and skill set could be acquired from this strand which also will serve as a solid platform upon which the responder can build and further develop their expertise in their future course and professional endeavors. STEM education is currently applied to increase the rate of students choosing professions in STEM fields, and also to increase their literacy in STEM fields and enable them to benefit from this information while solving problems in daily life (Thomasian, 2011).

"Maka help siya ma improved akoang mathematical skills."

(It will help improve my mathematical skills.)

(SR3 3/27/24)

SR3 Highlighted that one of the benefits they could obtain is that the respondent could improve their mathematical skills. This shows that, indeed, being involved in this strand could help you in various ways. On the other hand, STEM education aims not only to use the disciplines of science, technology, mathematics, and engineering together, but also to acquire some skills called 21st-century life skills which are generally being able to cooperate, communicate, think critically, and creatively (Yıldırım & Altun, 2014)

Driving Force of The Student. As we gathered the information in the interview, we met another peculiar impact on the student respondent which expressed the reason why it has a great impact on the respondent. The reason serves as their driving force in surviving the STEM 12 experience. (SR5)

"Because of STEM man gud kay mas nag excel ko sa acads, feeling nako basta naay pressure and naa kay goal nga gusto kuhaon kay biskan unsa mahitabo kuhaon gyud nimo."

(Because of STEM, I excelled academically. I feel that with pressure and having a goal you want to achieve, no matter what happens, you will achieve it.)

(SR5 3/27/24)

SR5 Indicated that engaging in STEM (Science, Technology, Engineering, and Mathematics) has significantly contributed to the respondent's academic excellence. The respondent believes that setting goals and experiencing pressure can be powerful motivators. With a clear goal in mind and the determination to achieve it, obstacles become challenges to overcome rather than barriers to success. SR5 Highlights that even with great pressure in being a STEM (Science, Technology, Engineering, and Mathematics) student, if you have determination, you can and will achieve anything. Locke and Latham (2006) underline the significance of establishing precise and demanding objectives to enhance motivation and performance. When learners define unambiguous academic goals, they tend to remain concentrated, endure hardships, and accomplish greater academic accomplishments.

Respondent's reasons for considering the factors of choosing the STEM (Science, Technology, Engineering, and Mathematics) curriculum.

As we interviewed different perspectives of Grade 12 students, we met and listened to their experiences as students under the STEM (Science, Technology, Engineering, and Mathematics) curriculum. Using the information and statements given by each respondent during our interview where each theme arises in each response reflecting their reasons for considering the factors of choosing the STEM (Science, Technology, Engineering, and Mathematics) curriculum.

Perquisites. Mostly in every student's mind, benefits from specific tracks that could help with their future professions are prioritized. The information we gathered from the interview as we met and listened to their perspectives on how beneficial the STEM strand can be to their preferred course. This response relates to why benefits of the curriculum as their reasons for considering the factors of choosing the STEM (Science, Technology, Engineering, and Mathematics) curriculum. (SR1 & SR3)

"Kay makatabang sila saakoa."

(Because it can benefit me)

(SR1 3/27/24)

SR1 declaration of selecting STEM strand suggests a strategic decision-making process. SR1 response is crafted to yield tangible benefits, demonstrating a clear focus on practical outcome and personal advancement. Through their decision, the respondent aims to apply the problem-solving skills inherent in STEM field to enhance their capabilities and opportunities for success. According to the research conducted by Dr. Setiabud, as many as 77% of students stated that STEM (Science, Technology, Engineering, and Mathematics) has benefits. The purpose of a living person is to provide benefits to others. Students consider STEM (Science, Technology, Engineering, and Mathematics) useful because people who study STEM (Science, Technology, Engineering, and Mathematics) can contribute to society.

"So that sa akoang pilion nga course ma improved jud nako to siya."

(So that in my chosen course, I can improve on it.)

(SR3 3/27/24)

SR3 included in their explanation how their current strand improves their skills for the preparation to their chosen course. This is so that they can learn how to employ creative thinking to address and prevent contemporary societal challenges through STEM education. Drake, Land, and Tyminski (2014) and Rahm (2014) affirm that any learning must be founded on the acquisition of knowledge and skills through students' experience.

Achieving Pressure. Academic pressure is what serves as the driving force for competitive students. In this interview, one respondent shared the optimistic way of handling academic pressure as a motivation to rise and keep up with the competitive side of the strand. Also, this information highlights the perspective of addressing problems in a positive way in improving or enhancing specific skills. (SR2)

"Kasi sa mga expectation sa mga tawo mas focus sila sa first section, so pag first section pod kase ka mas ma enhance pod bitaw imong abilities mas ma ano nimo nga since naa ka sa first section kinahanglan mas thrive and kinahanglan nimo I achieved ang mga goals."

(Because of people's expectations, they focus more on the first section. Because when you are in the first section, with high expectations, you need to thrive and achieve your goals.)

(SR2 3/27/24)

The students' response talks about how people pay a lot of attention to the first section. They feel like there is a lot of pressure to do well when there are big expectations. So, they believe it is crucial to not just do okay, but to do well and reach their goals. This shows they understand the importance of succeeding when everyone is expecting a lot from them. This insight reflects a mature understanding of the challenges inherent in navigating academic or professional domains where expectations run high, signaling a readiness to rise to the occasion and thrive amidst pressure. The value placed on communal goals is reflected in the highly positive evaluations accorded to individuals who display these other-oriented attributes. (e.g., Fiske, Cuddy, & Glick, 2007; Judd, James-Hawkins, Yzerbyt, &Kashima,2005).

Significant Academic Interest or Strengths of Subjects Under STEM Strand which Serves as a Driving Force of the Respondents

As we interviewed different perspectives of Grade 12 students, we met and listened to their experiences as students under the STEM (Science, Technology, Engineering, and Mathematics) curriculum. Using the information and statements given by each respondent during our interview where each theme arises in each response reflecting each Significant Academic Interest or Strengths Of Subjects Under STEM Strand Which Serves As Their Driving force.

Study of life and Study of numbers, forms, and relations. Science and Mathematics are the major subjects under the STEM curriculum which involves studies of life and its branches and a study of numbers, forms, operations, and relations. The information we gathered from the interview of one to three respondents relates to the subject's "Math" and "Science" which also align with their chosen course. It not only factors out the benefits for their future profession but also aligns with their favorite subjects. (SR1, SR2, and SR3)

"Siguro ang mga lessons diari nga inclined sa science nga mao gyud akong ganahan pud nga field."

(Perhaps the lessons here, which are inclined towards science, are the field I want to pursue as well.)

(SR1 3/27/24)

SR1 Emphasizes the lessons taught in the STEM (Science, Technology, Engineering, and Mathematics) strand where students are exposed to complex science and mathematical theories, and concepts that will serve as a foundation for their college courses, and science is inclined to what they want the field to pursue. According to the research conducted by Dr. Setiabud, as many as 73% of students stated that STEM is related to science. This is demonstrated by the reasons for the student's interest in the STEM field as they relate to their future goals and careers.

"For me it is the mathematics and science since nindot man gud ang math pag favorite nimo siya and nindot pod ang science kay it requires experiment it requires study para mas ma open imohang mind and mura siya og eye opener sa imoha nga as a student's nga there is more beyond that sumption."

(For me, it is mathematics and science because math is good when it is your favorite subject, and science is also good because it requires experimentation and study to open your mind. It is like an eye-opener for students that there is more beyond that assumption.)

(SR2 3/27/24)

SR2 Explained that they did not find it hard to study and learn Mathematics and Science because they are their favorite subjects. Science gives them a deep understanding of the world around us while Mathematics enhances their problem-solving skills. Both Mathematics and science provide insight into how different processes of knowledge are initiated, progressed, and

developed. It is an eye-opener because as they go deep into learning, they realize that there is more beyond what we see and think, the reason why these subjects are so interesting and challenging for them. According to the research conducted by Dr. Setiabud, high school students tend to be interested in studying subjects related to STEM because the majors that are popular among high school students are science, so the subjects they take are certainly closely related to STEM, as the subjects they face daily at school.

"Physics and chem jud."

(Physics and chemistry)

(SR3 3/27/24)

SR3 Clarify that Physics and Chemistry were their main objective because it is inclined to their preferred course in college. Grade 12 students efficiently developed background knowledge on subjects that is related to the concepts from AGHAMON and Math Enrichment. In the Senior High School setting, the students were able to integrate what they had previously learned into new lessons introduced in the STEM strand. (Therese Claire Marie A. Jarcia, and Bianca Ma. Sophia R. Untalan, 2023)

Teacher's Influence. Another factor of how subjects under the STEM (Science, Technology, Engineering, and Mathematics) curriculum gravely impacted them as Grade 12 STEM students was the influence of their teacher who serves as a motivator and a mentor to improve their mathematical skills. The information gathered from the interview highlights the influence of teachers who played a vital role as their motivators. (SR5)

"Math, because of the influence of Sir Pede. Kay dili gyud ko ganahan ug math pero because of Sir Pede naganahan nako."

(Math, because of the influence of Sir Pede. I did not like math, but because of Sir Pede, I started to enjoy it.)

(SR5 3/27/24)

SR5 passionately conveyed that the respondent is not fond of mathematics, their perspective shifted dramatically under Sir Pede's guidance, transforming their perception from indifference to genuine enjoyment. This positive experience not only enhanced their academic performance but also instilled a lasting appreciation for the subject, demonstrating the profound impact a dedicated educator can have on a student's learning journey. The quality of teachers shows a stronger relationship [than school facilities and curricula] to pupil achievement. Furthermore, it is progressively greater at higher grades, indicating a cumulative impact of the qualities of teachers on pupils' achievements. (Coleman et al. 1966; cited in Goldhaber 2016).

Exploring respondents' passions through experiences that parallel the factors within the STEM curriculum.

As we interviewed different perspectives of Grade 12 students, we met and listened to their experiences as students under the STEM (Science, Technology, Engineering, and Mathematics) curriculum. Using the information and statements given by each respondent during our interview where each theme arises in the exploration of respondents' passions through experiences that parallel the factors within the STEM curriculum.

Factors from Extracurricular Involvements. Welcomed by major subjects that study life and its branches, core subjects under the STEM (Science, Technology, Engineering, and Mathematics) curriculum add factors from extracurricular involvement by respondents with guidance from teachers who specialize in these subjects. The information gathered from the interview visualizes the factors inside the STEM curriculum creating a win-win situation for both their hobbies and dream profession. (SR1 & SR2)

"*Though core subject man gud siya so available pud siya sa laing strand which is ang English man gud, then naa man koy extracurricular activities like for example ang journalism then naa man gud siya diari. And also ang mga nagtudlo biya sa STEM kato gyud mga English major, grabe gyud kaayo. Sir Deroy, si Maam Maquinta, si Maam Cuadra, so makatabang gyud siya sa akoa, beneficial siya sa akoa."*

(Although it is a core subject, it is also available in other strands like English. I also have extracurricular activities, for instance, journalism, which is also offered here. The teachers who teach STEM are English majors like Sir Deroy, Ma'am Maquinta, and Ma'am Cuadra. So, it is beneficial for me.)

(SR1 3/27/24)

SR1 Explained that STEM can also help their English education, emphasizing its availability across different academic strands and its integration into extracurricular activities like journalism. They also appreciate the support of English teachers who also teach Science Technology Engineering and Mathetics subject, highlighting the beneficial impact of English education on their academic journey. According to the research conducted by Dr. Setiabud, if an average teacher response is taken from STEM, as many as 82% of teachers show a positive perception of STEM.

"Sa akoa sakong mga extracurricular nga gi apilan kinang ga required pod og deeper understanding and deeper ability to read, ako nga as a love nako ang reading mas benefit siya sa akoa nga na hasa na bitaw sa akoang comprehension readuing so pwede nako siya magamit sa pagiging STEM students kay mas dali nako masabtan ang akoang mga research or akoang gina basa para maka come up ko sa answers"

(For my extracurricular activities that are required and for a deeper understanding and ability to read, since I love reading, it benefits me because it hones my comprehension skills. I can use it as a STEM student because I can easily understand my research or what I am reading to come up with answers.)

(SR2 3/27/24)

The student is deeply passionate about reading, recognizing its multifaceted benefits beyond mere enjoyment. They perceive reading as an essential tool for their extracurricular activities and academic pursuits, particularly in STEM fields. Their love for reading not only enhances their comprehension skills but also equips them with the ability to delve into complex research and decipher intricate concepts with ease. This student's understanding of the interconnectedness between reading and their academic endeavors reflects a proactive approach towards self-improvement and a desire for intellectual growth. Internationally, extracurricular activities (ECAs) such as sports, drama, debate, 29 volunteering, academic revision clubs, etc., have gained an important place in students' 30 school life to the extent that many schools are making significant efforts to offer 31 different types of ECAs to their learners (Mtika and Payne, 2014; Seow and Pan, 2014; 32 Straw, Hart and Harland, 2011).

Respondent's Support System in Considering STEM Strand Than The Other Academic Strands

As we interviewed different perspectives of Grade 12 students, we met and listened to their experiences as students under the STEM (Science, Technology, Engineering, and Mathematics) curriculum. Using the information and statements given by each respondent during our interview where each theme arises reflecting Respondent's support system in considering STEM strand than the other academic strands.

Parent's Encouragement. As we enter different perceptions for each respondent one to two relates to having supportive parents and family, both respondents shared the theme and also have agendas on why their parents are supportive in choosing the STEM strand which of course be beneficial to their future course. The information gathered from the interview highlights the important role of parents' influence on their children in choosing their designated track. (SR1, SR3, and SR5)

"*Kuan nag serve gyud sila as an encouragement sa akoa and as a driving force nga mas mo more ang interest sa strand nga akoang gi pili."*

(They also serve as encouragement for me and act as a driving force that increases my interest in the strand I chose.)

(SR1 3/27/24)

SR1 stated that their parents not only provide practical advice but also serve as a source of encouragement and motivation. Acting as a driving force, in which they could show off their interest in the chosen strand, reinforcing the significance of their educational path and fueling their passion for subjects aligned with their future aspirations in the medical field. The unwavering support and positive act of the respondent's parents play a crucial role in shaping their academic journey and fostering a sense of purpose and determination. Studies have shown that parents' attitudes and values attached to the STEM domain are positively related to children's attitudes and values of STEM (Acosta and Hsu 2014; Breakwell and Beardsell 1992; Chen 2001; DeWitt et al. 2013a, b), children's STEM achievement (Acosta and Hsu 2014; Simpson and Oliver 1990; Sun et al. 2012), and the course choice in STEM.

"Like gina pa remind ko sa akoang parents nga kini nga strand ang akoang pilion kay maka help jud siya sakong pilion sa college. Akoa jud course jud kay medical field jud either nursing or med tech so gi ingnan jud ko nila og gika jud maka help na sa akoa."

(My parents often remind me that this strand will surely help me a lot with the course I want to pursue in college, my chosen course is really in the medical field, either nursing or med tech, so they always remind me that this strand will help me a lot.)

(SR3 3/27/24)

SR3 has opted for a specialized high school strand geared towards the medical field, with a focus on either nursing or medical technology. Their parents consistently remind the significance of this educational choice, asserting that the skills and knowledge gained will be crucial for their college studies and subsequent career. This shows that the parents consider and care for the respondent's choice of their future career. According to the research conducted by Dr. Setiabud, the main influence of parents is motivation and encouragement to students to succeed in subjects related to STEM.

"For me, akong biggest flex is that akong support system is taas gyud siya. Wala ko gina pressure sa akong family and ug unsa akong kaya kay okay ra sa ila. Basta mag skwela ko ug tarung and dili mo ubos akong grado."

(For me, my biggest flex is that my support system is strong. I do not feel pressured by my family. Whatever I can do, it is okay for them. If I study well and maintain my grades.)

(SR5 3/27/24)

SR5 The respondent's greatest source of pride lies in their support system. Unlike many who feel pressured by familial expectations, they experience a different dynamic. Their family emphasizes understanding and acceptance, prioritizing their well-being and academic success above all else. If they maintain good grades and excel in their studies, their family stands by them. This shows that fostering a healthy environment allows them to thrive without pressure. Parents' expectations for their child's achievement in the STEM fields are related to children's expectations for their success in STEM, and these children's expectations, in turn, predict objective achievement in the STEM domain (Bleeker and Jacobs 2004; Jodl et al. 2001; Simpkins et al. 2006).

Navigation of Influences in Academic Choices. The information gathered in the interview where one respondent weighs influence by peers of family. This highlights the internal struggle of balancing familial expectations with personal ambitions. Ultimately, the interviewee chooses to prioritize the influence of their peers in the STEM field over their mother's advice, showcasing the complex dynamics of familial guidance versus peer influence in decision-making processes. (SR2)

"*Sa peers dako kaayo siya since most sakoang friends nag STEM pero og family sakong mama personally mi ingon siya nga mag ABM daw ko pero ang akong gi pilj kay STEM kay desigido nko nga mag nursing ko in the future so og I balance nko mas gusto nako ang influence sa akong mga friends compare sa akong mama."*

(In terms of peers, it is a significant influence since most of my friends are in STEM. But in terms of family, my mom personally told me to take ABM. However, I chose STEM because I am determined to pursue nursing in the future. So, I balance it out; I prefer the influence of my friends over my mom's advice.)

(SR2 3/27/24)

SR2 emphasized that Influences from peers and family have shaped their educational choices. While most of their friends are in STEM, reflecting a significant peer influence, even if their mother recommended the ABM strand. Despite this advice, they opted for STEM, driven by their determination to pursue nursing. Striking a balance between peer and familial influences, they prioritize their friends' insights over their mother's recommendation to align with their career aspirations. When students feel tied to a group that supports STEM, their motivation in this domain may be strengthened (Cohen & Garcia, 2008). Of course, students who already value STEM may select friends who share this interest. We suspect that both pathways are likely: Students tend to select friends based on shared interests and affiliating with these groups helps to sustain these interests (Kindermann, 2007; Ryan, 2000; Scarr & McCartney, 1983).

Conclusion

In conclusion, factors that influence Grade XII-STEM (Science, Technology, Engineering, and Mathematic) students in choosing STEM (Science, Technology, Engineering, and Mathematic) curriculum all played a significant role in their lives. The encouragement of parents, peer pressure, career choice, passions/hobbies involving extracurricular involvement, teacher's influence, and subjects under the STEM (Science, Technology, Engineering, and Mathematic) strand are the main factors that really

influenced their choice. Although they have different perspectives, they all agree on certain benefits that they can get from entering this curriculum, especially in guiding them to the path of their dreams. These factors help Grade XII students in their journey under the STEM (Science, Technology, Engineering, and Mathematic) strand and also in their future careers studying their dream courses, as they shape them into better and more knowledgeable individuals. Also, their experiences serve as an eye-opener for breaking stereotypes and high standards for taking the STEM (Science, Technology, Engineering, and Mathematic) strand.

Recommendations

Based on the study findings, it was revealed that there are several factors in choosing the stem strand of the Grade 12 students. The factors such as the support of parents, career choice, teacher's influence and subject under the stem influence the students to pursue this academic strand. Therefore, the researchers recommend that students should consider several key factors when choosing the stem strand to ensure the students make an informed decision that aligns with their interest, goals, and future career aspirations. The following are the researcher's recommendations:

1. Personal Interests: Encourage students to reflect on their passions and strengths in subjects like math, science, and technology.
2. Career Opportunities: Highlight the diverse career paths available in STEM fields and how the STEM strand can prepare students for these opportunities.
3. Curriculum Alignment: Evaluate how well the STEM curriculum aligns with students' academic goals and future aspirations.
4. Teacher Support: Emphasize the importance of supportive and knowledgeable STEM teachers who can guide students through the challenges of the program.
5. Extracurricular Activities: Suggest exploring extracurricular activities related to STEM, like clubs, competitions, and internships, to enhance learning and engagement.
6. Parental Guidance: Recommend involving parents in the decision-making process to provide additional support and insights into their child's interests and abilities.

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