

# Mapping the Future: Key Considerations in STEM Strand Selection

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## ABSTRACT

This study aims to explore and understand the considerations of junior high school students and parents in choosing the Science, Technology, Engineering, and Mathematics (STEM) strand. The study utilized a phenomenological research design to explore the perspectives and lived experiences of Grades 9-10 students preparing for Senior High School and Grades 11-12 STEM students. This study utilized purposive sampling design. The data were collected through in-depth interviews to gain insights. The study revealed that students' decisions to pursue the STEM strand are shaped by multiple factors, including family influence, career opportunities, academic readiness, personal interest, peer influence, and perceptions of subject difficulty

and workload. These findings highlight the importance of promoting a supportive environment, may it be at home or in school, to help students navigate their academic journey. By understanding the factors that influence their decision-making, educators and policymakers can better guide students toward informed choices, ensuring they are prepared for future opportunities in STEM and beyond.

**Keywords:** *Considerations, STEM Strand, Junior High School, Decision-Making*

## INTRODUCTION

As students across all levels face the challenge of meeting society's evolving expectations, the demand for professionals in Science, Technology, Engineering, and Mathematics (STEM) has significantly increased in today's rapidly advancing world. STEM fields play a crucial role in driving technological and scientific advancements, shaping industries, and fueling economic growth. With societies becoming more dependent on technology, proficiency in STEM is essential not only for global competitiveness but also for economic stability (OSTP, 2019). Countries such as Australia emphasize the need to enhance STEM skills and knowledge to sustain national productivity and remain competitive on the global stage. In response to these global demands, the Philippine education system has undergone significant changes, particularly with the implementation of Republic Act No. 10533, which introduced the K-12 system to better prepare students for higher education and the workforce (Madriaga et al., 2022). This system includes the Academic Track,

where students choose a strand that aligns with their career aspirations, with the STEM strand standing out as a pathway equipping students with essential skills for the modern workforce (Bundang et al., 2024). However, despite the increasing demand for STEM professionals, many junior high school students struggle with deciding whether to pursue this strand (Coursera, 2025). Their decision involves various considerations, including personal interests, career aspirations, academic preparedness, parental influence, and societal expectations. While numerous studies have explored students' motivations for choosing STEM, there remains a significant research gap in understanding how socio-cultural influences, personal identity, and career awareness impact their decision-making. Beyond academic performance and gender stereotypes, further research is needed to examine how these factors interact and how schools can address them to promote diverse student participation in STEM fields.

The selection of the Science, Technology, Engineering, and Mathematics (STEM) strand by junior and senior high school students is influenced by various factors globally and within the Philippine context. Internationally, a study conducted by the ASEAN Journal for Science Education (2023) shows that out of the 88 participants, 65 students prefer the STEM strand, with a percentage of 73%. Looking at the background of education in the Philippines, it has only been 8 years since the implementation of the Republic Act No. 10533, containing the K to 12 system that adds two more years in high school (i.e., senior high). In another study, conducted by Madriaga et al (2024) which focuses on the Philippines context, explained that the preference of the participants is based on the personal factors: career aim, family and/or peer motivation, abilities and skills, subject interest/preference, strand perception, NCAE results, family influence/pressure with the career aim being the highest with a total of 202.

This study aims to explore the factors influencing students' decisions in choosing the STEM strand by gathering insights from Junior High School students considering STEM and Senior High School STEM students. By identifying key motivators and challenges, this research seeks to provide valuable recommendations for students, parents, educators, and policymakers to enhance guidance and support in academic and career decision-making. Ultimately, this study aims to foster a more inclusive and supportive environment that encourages diverse student participation in STEM fields.

## **LITERATURE REVIEW**

### ***Background of K-12***

The K-12 program encompasses kindergarten and 12 years of basic education (six years of primary education, four years of junior high school, and two years of senior high school) to foster lifelong learners, prepare students for higher education, middle-level skill development, employment, and entrepreneurship (Deped Tagbilaran, 2020). The program emphasizes the importance of the K–12 system in the nation by looking at its implementation and history. It illustrates the curriculum's structure and noteworthy aspects while showcasing how the Philippine educational system uses it. It also examines the philosophical and legal underpinnings that serve as guidelines for its execution and contrasts traditional schooling with K–12 education (Cruz, 2023).

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### ***Implementation of SHS Strands in the Philippine Curriculum***

The Department of Education in the Philippines implemented the Republic Act 10533, or the Enhanced Basic Education Curriculum in May of 2013 (Nacorda et al., 2019; Gamboa et al., 2020). This led to the creation of the Senior High School Program. With the new trends of education, the implementation of the Senior High School curriculum provided an avenue to enhance and develop more skills for our graduates to become experts in their field and become agents of change in society. Senior high school implementation aims to equip the students with essential knowledge and skills that will help them prepare better for the chosen path in higher education, employment, or entrepreneurship (Nacorda et al., 2019).

According to Republic Act 10533, a student's educational years consist of at least one (1) year of kindergarten, six (6) years of elementary, and six (6) years of secondary. Secondary education consists of four (4) years of junior high and two (2) years of senior high school. Senior high school pupils might select academic, technical vocational, livelihood, sports, or arts and design (Gamboa et al., 2020).

### ***General Challenges in Choosing a Strand***

Choosing a senior high school strand is one of the most challenging decisions that junior high school students will have to face (Malaguial et al., 2023; Celmar et al., 2024). It is critical because the strand they choose will serve as their training ground before entering college. Career selection is an intricate process in which students must consider factors that will affect their overall decision, such as the sociodemographic profile, socioeconomic status, parents, job opportunities, academic performance, personal interest, and many other aspects to be forcefully open-minded of what they will encounter (Malaguial et al., 2024).

According to Kilag et al. (2023), senior high school is a significant stage in the Philippine education system. This educational level offers students a variety of routes to prepare them for their future employment, including academics, technical-vocational training, and entrepreneurship. Choosing a suitable senior high school track is critical for grade 10 students since it can substantially affect their future academic and professional careers (Celmar et al., 2024).

### ***Junior High School Students preferring the STEM Strand***

The STEM strand is a top pick among students; this is led by a variety of factors. Findings by Bayanova et al. (2023) indicate that motivation is one of the leading affective factors for students choosing the STEM strand. It influences learners' interest, learning outcomes, and career choices in STEM fields. With this aspect of research findings, motivation has become very important in influencing learners' interests, encouragement of their work in STEM subjects, and career choice decisions in STEM fields.

Aside from motivation, students are also interested in participating in STEM-based learning activities because it trains them to think critically, creatively, and systematically (Madriaga et al., 2022). STEM education, with its daily relevance to life and real-world problems, can influence students' interest through teachers' strategies, such as involvement in STEM-related activities. (Madriaga et al., 2022;

Punzalan, 2022).

### ***Science, Technology, Engineering and Mathematics***

The STEM (Science, Technology, Engineering, and Mathematics) strand is an academic track in the Senior High School program that is designed for students who are interested in pursuing careers in science, technology, engineering, and mathematics (Sacred Heart School - Ateneo de Cebu, 2022).

During the 21st century, the workforce related to science, technology, engineering, and mathematics (STEM) fields has become increasingly important (Siregar et al., 2019). These fields are viewed as vital contributors to economic growth and innovation. STEM skills and competencies are key to increasing the quality of the STEM workforce and related research. It is also recognized as a critical tool for improving knowledge and understanding, as it fosters critical thinking and problem-solving skills through project-based learning making it viewed as highly transferable skills that increase employability in non-STEM sectors (Holmes et al., 2021; Siregar et al., 2019).

### ***Considerations of Junior High Students in choosing STEM***

Career development is a lifelong process, and early adolescence is an especially critical time when our youth are forming beliefs about themselves as lifelong learners, while setting academic and career related goals. There is a crucial requirement to stimulate our youth to view careers in STEM disciplines as attractive, significant, worthy and achievable, factors such as family, teachers, peers, and career interest (Murcia et al., 2020; Abe et al., 2020).

### ***Background of the Students***

Choosing a strand can be affected by the sociodemographic profile, socioeconomic status, parents, job opportunities, academic performance, personal interest, and many other factors that students need to keep in mind for the state of future times. Students' interests, career goals, and perceived benefits were the primary factors influencing career interest and goals (Celmar et al., 2024).

### ***Influence of Parents and Family in Decision-Making***

The Philippines being a family-oriented country poses outside factors in the decision-making of Filipino students. Strand choice is often influenced by parents and parental figures; children are forced to adhere to family authority. Obeying family opinions is a fundamental part that comprises Filipino values and traditions (Gudoy et al., 2024).

### ***Socioeconomic Status and Financial Capacity***

The National Center for Education Statistics reported that the high school dropout rate of students from low socioeconomic status (SES) was 11.6%, compared to 2.8% for students from higher SES. The persistence of low SES students in STEM is significantly lower when compared to students with backgrounds of higher SES. It is commonly understood that schools from less affluent areas have fewer

financial resources to afford their students an equitable education compared to schools from more affluent locations (Adams, 2022).

### ***Gender and Ethnic Background in STEM-related fields***

The role of gender and ethnic background have always been up for discussion in STEM-related fields. According to Zuo et al. (2019), these factors play significant roles in decision-making. Structural racism and gender stereotypes are prevalent in STEM education spaces. These actions often discourage ethnic minorities and females from participating, limiting opportunities to develop career aspirations in STEM fields. Despite efforts to increase representation, women only account for up to 29% of the STEM workforce, with ethnic and minorities facing similar disparities.

### ***Personal Interests***

Personal interest is a key contributor when pursuing a career path and students' decisions to pursue STEM careers. Personal interest is influenced by factors like enjoyment, passion and practical application of STEM subjects. Personal interest can be linked with career aims, where students often select STEM strands because they align with their preferred future career (Amalina et al., 2025).

While it is important to have personal interest, being aware of and pushing one's area of interest is equally as important. It can help one develop to get on the appropriate career path. These things are essential contributors towards figuring out what line of profession is best for them in the future. Skills benefit not only individuals with better wages, greater work satisfaction, and increased adaptation to change but also companies, as they can maximize employees' skills and be more profitable (Celmar et al., 2024).

STEM career aspirations are a wide subset of career aspirations defined as 'an individual's expressed career related goals. This can contribute to future STEM-related career paths (Chen et al., 2024).

According to Chen et al. (2024), STEM career aspirations refer to the evolving goals, ideals, and intentions of individuals to aspire to careers in STEM. These aspirations can be understood as people's hopes and dreams for further STEM studies and careers.

### ***Experiences and Exposure to STEM-related activities***

Students are provided with access to core STEM courses as early as elementary school, this increases their personal interest in pursuing STEM careers in the future (GEMS, 2019).

Madriaga et al. (2022) reveal that students are interested in STEM-based learning activities and experiences. Involvement is one of the best ways of positively influencing their perception of the strand and help equip students with awareness, knowledge, and a clear perception of the strand.

According to a study commissioned by littleBits that was conducted in partnership with YouGov, a third-party research organization, U.S. adults with 1-2 years of experience in the workforce have reported the highest exposure to STEM concepts in elementary school. According to the research, 46% of ages

between 5 and 8 of this population, have experienced a STEM-related track back in school. 53% of this population currently have occupations in fields that heavily involve STEM (GEMS, 2019).

### ***Motivation and Passion for STEM subjects***

As mentioned by Bayanova et al. (2023), motivation is a leading affective factor for students choosing the STEM strand. Manalo (2024) also mentions that it is a significant aspect towards achieving a goal.

In a study conducted among STEM students at a public academic institution in Lipa City, Batangas, it was found that their primary motivation is their achievements, in which they gain satisfaction when they successfully achieve something in science learning (Manalo, 2024).

### ***Practicality***

STEM fields provide numerous benefits, the most out of any strand. It offers practical benefits, including fostering creativity, expanding technical knowledge, and increasing job opportunities due to their diverse applications across various industries (miraclecreation, 2022).

Holmes et al. (2021), Siregar et al. (2019) and miraclecreation (2022) highlights that STEM skills hold various benefits and competencies that can be used as critical tools in non-STEM sectors such as critical thinking, problem-solving skills and project-based learning. This can increase job opportunities due to diverse applications across various industries.

### ***Availability of Job Opportunities in STEM Fields***

With the rise of technology in today's world across all industries, STEM positions are in high demand. In that case, having a STEM base greatly affects job opportunities. STEM-educated individuals contribute to a nation's overall success (Staff, 2024). Additionally, there is an increasing concern that the future demand for science, technology, engineering, and mathematics (STEM) graduates will exceed supply. After discussing the importance of developing STEM qualified employees, self-efficacy was found as a significant trait to possess (Murcia et al., 2020).

### ***External Factors***

When junior high school (JHS) students consider choosing the STEM strand, several external factors tend to come into play. These factors can include relations, connections, family, and peer recommendations. These can significantly impact a student's decision, as they often seek advice from trusted individuals (Madriaga et al., 2022).

Research by Shulga et al. (2023) examined the role of high school faculty, demographics-specifically, the proportion of female high school math and science teachers-in and college students' decision to choose a field of study in STEM. Their results showed that the proportion of female learners' career choices in STEM education, high school math and science teachers did not affect male students. It

rather had a strong effect on female students' likelihood of choosing and graduating from a field of study in STEM.

### ***Challenges and Restrictions Experience in the STEM Field***

It has been established that motivation is one of the leading factors in students choosing the STEM strand. It is important to understand how to keep that motivation blazing. According to Qureshi et al. (2021), most children start losing their interest in science and mathematics during school days because many concepts are virtual and must be imagined. The difficulty of relating the theories studied in the classroom to the real world can sway away prospects.

21stCentEd (2023) tackles the other challenges of students, such as financial constraints, curriculum integration, and societal misconceptions. Limited resources and funding often hinder schools from providing up-to-date technology, engaging materials and professional development for teachers, resulting in unequal quality of STEM education.

### **Related Studies**

Junior high school is often seen as a time to explore and grow. Students may prioritize leisure over responsibilities. However, as they transition into senior high school, a crucial decision must be made: which strand to pursue. For those considering the Science, Technology, Engineering, and Mathematics (STEM) strand, this decision is significantly important. It opens pathways to careers in innovation, healthcare, engineering, and technology. This strand is well-suited for those who have an aptitude for problem-solving, mathematics, and scientific inquiry. However, various factors influence students' decision-making. This encompasses academic preparedness, career aspirations, external influences, and perceptions of STEM-related fields. Understanding these considerations is fundamental in career guidance toward informed academic choices and long-term success.

Senior high school serves as a bridge between basic education and higher education. It enhances students' academic, technical, and vocational skills, promoting holistic development, global job market alignment, and college readiness (Marina et al., 2025). On the other hand, strands are career paths that students have to choose when transitioning into senior high school. They pave the way towards future careers and occupations.

The STEM strand is widely regarded as one of the most challenging strands in the senior high school program, due to its rigorous curriculum, focus on critical thinking and demanding performance in mathematics. Despite its difficulty, the STEM strand offers significant benefits, as it aligns with growing industries with a high demand for skilled professionals. To fully understand STEM and its population, it is important to know the factors of those looking to be students and current students of STEM to widen the perspective.

Data from a research study done on senior high students of Zambales, Philippines shows that most participants who enrolled in STEM wanted to pursue STEM-related careers after their university

graduation. Furthermore, personal aspiration is the main reason for the participants to pursue STEM-related professions (Rafanan et al., 2020).

This is supported by Dublin et al. (2020). According to them, personality, parents, job opportunities, and interest were found to be statistically significant in influencing and predicting students' career preferences. Among the determinants, the variable interest was found to have the strongest influence on students' course preferences.

This interest is highlighted by Malaguial et al. (2023), providing the statistic that 73.9% of students choose STEM with the most influential factor being personal interest. Interest can arise from various reasons. Abuel et al. (2024) revealed that early exposure to STEM fields, academic activity, self-efficacy, and personal factors influence career interests.

Grimalt-Álvaro et al. (2021) delve into the term “STEM people”. This term is defined as the positive relationship between a student and the STEM field. Your positive relationship with mathematics allows you to be deemed a “STEM person”. To connect that idea, an individual looking to take STEM must be a STEM person. If you do not have the aptitude to keep up with the high demand, it is difficult to pursue a career in this strand.

Plasman et al. (2020) and Stefani (2024) indicate that parent STEM occupation matters. Its impact can be linked to the number of parents in a STEM occupation. Insinuating that a parent's occupation can directly influence their son or daughter. It also provided evidence of the growth of science capital among individuals, which can be passed from parents to children. Teachers, parents, and mentors are always a fundamental factor in career guidance and the future choices of the student (Sahin et al., 2021). Parental involvement and support significantly affect the career choices of a student, oftentimes affecting career interest and career inheritance (Alcaraz et al., 2024)

Career choice is important in a student's transition from secondary education to higher education. It is essential to determine and understand the factors that affect a student's choice to pursue a STEM related career. Economic factors, such as financial stability and returns, received a strong consensus from students, while social factors had the least importance (Barrera, 2024).

STEM career preference can be categorized as appealing, unappealing, polarizing and overlooked. Data from Rosenzweig et al. (2023) showcased the overlooked category being the most common. Utility and attainment value influenced career choices, but helping others was a key motivator for those with preferred careers.

Like the transition into senior high school, personal interest plays a key factor in the career choice of students as well. A review by Zhou et al. (2025) reveals that self-motivation, social persuasion, self-efficacy, personal utility, and positive STEM career aspirations play a role in shaping STEM career choices. Idris et al. (2023) covers key dimensions influencing STEM career interest, including self-efficacy, personal objectives, outcome expectations, interest in STEM courses, contextual support, and personal input.

STEM careers are one of the most rewarding but also challenging. Rogayan et al. (2021) believe the obstacles faced by students can be divided into three categories: course-related, that pertains to the difficulties STEM students' have in the provided subjects in the program and the general curricular requirements, sociocultural, that deals with the difficulties of the students that happen in their cultural setting, and individual, that refer to the challenges encountered by students in studying STEM.

Ongoing issues also include the gender gap in STEM-related fields. Sahin et al. (2023) provide an eye-opening statistic on the topic. Males are expected to be 1.9 times more likely to consider STEM majors in colleges than females. On the other hand, Mouganie et al. (2020) argue that peers are the reason behind high-performing female students. The study claims that being exposed to a high-performing female increases the likelihood of women choosing a science track in high school, while the effect is the opposite when being exposed to a high-performing male. These peer effects persist into college outcomes, but there is little evidence of similar effects for boys.

Card et al. (2021) argue with Sahin et al. (2023) and Mouganie et al. (2020) entirely. According to them, the gender gap in STEM is primarily due to differences in STEM readiness, which is influenced by high school math and science coursework. But Punzalan (2022) dives into the gender differences in the gender gap. Their findings show that STEM interests with boys and girls showing moderate interest in all STEM subjects except for trigonometry, where boys had low interest.

Differences also bring stereotypes, stereotypical beliefs about the STEM field and STEM careers negatively affect students' self-efficacy and career related outcome expectations. This can impact their interest in choosing a STEM career (Luo et al, 2021).

This can sway those who are passionate about STEM away from opportunities to pursue their goals. Practical implications are also affected by this. Passion-based and practical-based preferences in choosing a senior high school strand often go through students seeking advice from teachers and parents when making their decisions (Magdadar, 2020). Having a negative effect can cloud judgment in the decision-making process.

## **METHODS**

### **Research Design**

The study utilized a phenomenological research design to explore the perspectives and lived experiences of students regarding the STEM strand. Phenomenology seeks to understand the essence of a phenomenon by examining it through the lens of those who have experienced it, as seen in recent studies that emphasize the importance of subjective experiences and lived realities in understanding phenomena from within the individual's consciousness (Neubauer et al., 2019). In-depth interviews were conducted with Grade 9-10 students preparing for Senior High School and Grades 11-12 STEM students to gain insights into their decision-making process, experiences, and perceptions of the strand.

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## **Research Participants**

The participants in the study were purposely selected based on the inclusion criteria: the respondents should be either Grade 9-10 students from Saint Louis School of Don Bosco who are considering the STEM strand and Grade 11-12 students currently enrolled in the STEM strand in the same school. The researcher employed purposive sampling, a non-probability sampling technique where participants are selected based on specific characteristics relevant to the study. This approach is widely used in qualitative research to ensure that the sample aligns closely with the research objectives (Ahmad & Wilkins, 2024). This sampling strategy requires prior knowledge of the study's purpose to ensure that the selected participants provide meaningful insights into the decision-making process and experiences related to the STEM strand.

## **Research Instrument**

The study will use an interview questionnaire or guide to gather information about the reasons and factors that influenced students to choose the STEM strand. The interviews will provide valuable insights from both students and parents. The recorded interviews will also be used to better understand the key factors affecting students' decisions in selecting the STEM strand.

## **Data Gathering Procedures**

The researcher must first prepare a formal request letter signed by the research adviser, noted by the senior high coordinator, and approved by the principal to seek permission to conduct interviews with students. The letter will be given to the concerned individuals, and the intent and purpose of the study will be thoroughly explained. The researcher will also inform the participants about the benefits of their participation and assure them of the confidentiality of their responses. Upon receiving approval, the researcher will schedule and conduct the interviews, ensuring that they are recorded with the interviewee's consent. The interview will focus on the topic, "Considerations of Junior High School Students in Choosing the STEM Strand," and will last approximately 6-12 minutes. The gathered data will then be reviewed, transcribed, and analyzed to identify patterns and key insights. Finally, the findings will be interpreted and used to conclude the factors influencing students' decisions in selecting the STEM strand.

## **Data Analysis**

This research study utilized Colaizzi's phenomenological methodology to ensure the trustworthiness of the information gathered and to capture the emotional depth of each participant's lived experience. The student researchers collaborated in transcribing the collected data, ensuring accuracy and completeness. After transcription, the recordings were reviewed once more to identify and correct any errors. Each interview was carefully analyzed to understand the participants' unique perspectives and extract meaningful insights. This process allowed the researchers to grasp the overall essence of the participants' experiences in choosing the STEM strand.

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## **Ethical Considerations**

Ethical considerations in this research paper encompass several vital principles to ensure the integrity, respect, and confidentiality of all study participants. The study adhered to the principles of informed consent, wherein participants, including students and parents, were provided with comprehensive information about the study's objectives, procedures, potential risks, and benefits. To maintain confidentiality, all personal information and responses were kept strictly anonymous and used solely for research purposes. Additionally, the study ensured that participants were treated with respect and that no coercion or pressure was applied to influence their responses. Any potential biases were minimized by ensuring that data collection and analysis were conducted objectively and fairly.

## **RESULTS AND DISCUSSION**

### ***Parental and Family Influence in STEM Strand Selection***

Many of the participants expressed that their reason for choosing the STEM strand was heavily influenced by their families. Most participants shared that their parents, siblings, or other family members encouraged them to take STEM-related courses, specifically nursing and medicine. Some participants revealed that they initially had different interests, such as taking the HUMSS or ABM strand, but because of their families, they ended up choosing the STEM strand. This supports the study of Gudoy et al. (2024), who asserts that in a family-oriented country like the Philippines, the career choices of their people are frequently impacted by what their parents or parental figures want their children to do. Some participants mentioned that their parents play an important role in their academic choices, while others looked up to family members such as older siblings or aunts, who had pursued STEM-related fields. This aligns with the study of Abuel et al. (2024), which found that parental involvement increases self-esteem and drive, demonstrating that a family's educational past has some bearing on academic and professional decisions. However, not all participants felt entirely forced into their decision. Some expressed that although their families encouraged them, the final choice remained theirs.

### ***Career Opportunities as a Key Factor in Choosing STEM***

Many participants note that career opportunities play a significant role in their decision to take the STEM strand. This aligns with a study conducted by Alcaraz et al. (2024), claiming that job opportunities significantly affect students' career choices. A recurring response among the participants was of the belief that STEM-related fields offer higher salaries and more job stability compared to other strands. Some participants originally wanted to choose other strands, particularly HUMSS, but opted for STEM due to concerns about job availability. Some participants emphasized that STEM has an advantage in college admissions and offers a broad range of career paths, specifically in fields like medicine, engineering, and technology. This supports the study conducted by Malaguial et al. (2023), with the results showing that out of the factors considered, job opportunities had a 4.17% level of influence.

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### ***Readiness and Preparation for College and Career Pathway***

Senior high school implementation aimed to equip the students with essential knowledge and skills that will help them prepare better for the chosen path in higher education, employment, or entrepreneurship (Nacorda et al., 2019). Furthermore, students feel that their strand will benefit them, particularly in terms of aligning their future employment. The participants claim that becoming a STEM student would help them understand more about what their future employment entails and provide them with the idea of the life they will have in the future. It gives them time to fully grasp every aspect of their future career. This complements Rafanan et al.'s (2020) study, which stresses STEM as one of the key reasons that students connect with their future courses and occupations.

### ***Personal Interest and Driving Force***

Among many variables, personal interest is the most important to have when pursuing this strand (Malaguial et al. 2023). This can open pathways to different careers, all playing vital roles in today's economy. The source of this personal interest stems from many reasons. One of them is predominantly their aptitude for STEM core subjects such as mathematics, science, and computer-related subjects. Many of the participants share this in common. Some respondents shared a background of early STEM exposure. Abuel et al. (2024) support the fact that being exposed to STEM fields early on plays a major influence on an individual to develop a fondness for the STEM strand.

### ***Peer Influence in the Decision-Making Process***

The most common factor influencing participants' decision to choose the STEM strand was their friends. This is in congruence with the study of Madriaga and Siobal (2022), which argues that peer recommendations can significantly impact a student's decision, as they often seek advice from trusted individuals in their network. Many respondents expressed that their peers played a crucial role in shaping their academic choices, often guiding their decisions based on shared interests and aspirations. The presence of friends in STEM created a sense of belonging and motivation, making the transition into the strand feel more natural and encouraging. Dublin et al. (2020) also emphasized that peer influence is a strong motivating factor in academic choices, as students tend to follow the paths of their social circles. One respondent highlighted that seeing their friends push through challenges inspired them to do the same. These findings suggest that students often look to their peers not only for companionship but also for validation and encouragement in making decisions for their senior high strand.

### ***Weighing Subject Difficulty and Workload***

Many of the participants had similar responses regarding math-related subjects, specifically General Mathematics and Basic Calculus. Some participants advised the junior high school to prepare in advance and to have a strong foundation in mathematics as it is essential in the STEM strand. Several of the participants shared that while they found science subjects to be difficult, they enjoyed subjects related to Math, as well as Science. According to Nitzan-Tamar and Kohen (2022), choosing advanced mathematics and excelling in Math or Science in secondary school positively impact STEM persistence. However, some

students admitted that Math is a major struggle, making them question their decision to pursue STEM. This aligns with a study conducted by 21stCentEd (2023), claiming that misconceptions and stereotypes, such as the belief that STEM is too difficult, create barriers to student participation.

### ***Capability through Motivation and Mindset in Considering the STEM strand***

In the interviews conducted, students who choose the STEM strand and are looking forward to this senior high strand are already aware that it is not going to be easy, but they are prepared to face all the challenges. They handle academic pressure by staying calm, learning from their mistakes, and pushing forward despite difficulties. Though some struggle with self-doubt and question their own potential, they continue to persevere. Even when they consider switching strands, they remind themselves of their purpose and move forward. This supports the study conducted by Bayanova et.al (2023), emphasizing that motivation has become very important in influencing learners' interests, encouragement of their work in STEM subjects, and career choice decisions in STEM fields. Some are motivated by their passion for technology, math, and problem-solving, while others see STEM as a pathway to greater opportunities and personal development. According to Rogayan et al. (2021), despite the hardships, students stay focused on their goals, knowing that success comes from passion, effort, and a strong mindset to keep pushing forward.

## **CONCLUSION**

The study revealed that students' decisions to pursue the STEM strand are shaped by multiple factors, including family influence, career opportunities, academic readiness, personal interest, peer influence, and perceptions of subject difficulty and workload. Many participants shared that their choice was driven by encouragement from family members, especially those who had pursued STEM-related careers themselves. Others were drawn to STEM due to its promise of higher salaries and greater job stability compared to other strands. Additionally, students saw it to better prepare for their future career aspirations. While personal interest plays a crucial role in their decision, peer influence also helps shape these interests. Students often seek validation and encouragement from their peers when making academic choices, highlighting the social aspect of their decision-making process.

Despite the challenges posed by the difficulties of STEM subjects, particularly General Mathematics and Basic Calculus, many students remain determined to continue the STEM strand. Their resilience, driven by motivation, a growth mindset, and a passion for their chosen field, allows them to push through difficulties. These findings highlight the importance of promoting a supportive environment, may it be at home or in school, to help students navigate their academic journey. By understanding the factors that influence their decision-making, educators and policymakers can better guide students toward informed choices, ensuring they are prepared for future opportunities in STEM and beyond.

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