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RESEARCH ARTICLE

From Senior High to Science Education: Factors Influencing Non-STEM Senior High School Graduates in Choosing BSE Science as their Degree Program

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ABSTRACT

This study explored the factors that influence non-STEM senior high school graduates in choosing BSE Science as their degree program. It was conducted at Pangasinan State University's Lingayen and Binmaley Campuses, surveying 196 non-STEM students from first to fourth year. The results revealed that most of these students were female, with a majority coming from the HUMSS strand, followed by TVL, GAS, and ABM. Personal interest and passion for science were the top factors in their decision, followed closely by career opportunities, job security, and the prestige of STEM careers. On the other hand, family and peer pressure were found to be the least influential. Many students chose a non-STEM strand in senior high school because the STEM track wasn't available, they perceived STEM subjects as too difficult, or they didn't fully understand the importance of the STEM path. Some gender differences were observed, with male students reporting more influence from family and peers. However, no major differences were found in terms of career opportunities or interest in science based on sex or the SHS strand. The findings suggest that the SHS strand a student takes plays a big role in their choice of a STEM-related college program, influenced by factors like accessibility, difficulty, skills, and shifting interests. The study recommends improving access to STEM tracks, offering career guidance, and increasing the visibility of universities offering STEM programs. It also suggests further research into how non-STEM students perform in STEM fields and strategies to help them succeed.

INTRODUCTION

The global demand for qualified science educators continues to rise as nations emphasize STEM (Science, Technology, Engineering, and Mathematics) education to drive innovation and economic growth. Despite this, a growing trend shows that non-STEM senior high school graduates choose to pursue science education degrees, even without a formal STEM background (Gaviola et al., 2023).

In the Philippines, the education system historically lagged behind international standards, offering two years less than most countries. This landscape of education underwent a significant transformation in 2013 with the enactment of the Enhanced Basic Education Act (Republic Act 10533). This law introduced a major reform by expanding the basic education cycle to include Senior High School (SHS), restructuring the system to better equip students with essential skills and knowledge for higher education, employment, or entrepreneurship. Grades 11 and 12 to better prepare students for higher education and employment (Maghuyop, 2017).

According to the Department of Education (DepEd, 2016), the SHS curriculum aims to equip students with 21st-century skills, enhance employability, and ensure global competitiveness. It also provides students with opportunities to specialize in academic or vocational tracks aligned with their abilities, interests, and future career plans.

The two additional years in Senior High School in the Philippines provide students with the opportunity to choose a specialization aligned with their skills, interests, and academic strengths.

This specialized education helps equip them with the necessary foundation for their selected college programs and future careers (Gaviola, et al 2023). Students may choose a specific strand: Accountancy and Business Management (ABM), Humanities and Social Sciences (HUMSS), General Academic Strand (GAS), Technical-Vocational-Livelihood Strand (TVL), and Science, Technology, Engineering, and Mathematics (STEM) (Malaguial et al., 2023).

Despite students finished SHS, students opt to enroll a college degree program because students who have reached and completed tertiary education have a higher likelihood of becoming successful in the adult world, improving their chances of having a better life in virtually all aspects (Eurostat, 2023).

The college program a student chooses in Senior High School can shape their future in a big way. It not only sets the direction for their career but also influences their experiences, opportunities, and personal growth as they step into adulthood. The shift from senior high school to college or any other K-12 curriculum exit is a pivotal stage in a student's academic journey. This transition involves crucial decisions that can significantly shape their future career path. At this stage, senior high school graduates face a crossroads, weighing their options between different curriculum exits and the diverse degree programs available in higher education institutions (Baguio et al, 2024).

One thing that influences college students' programs is their strand in Senior High School (SHS) (Malaguial et al., 2023). However, in 2017, the Commission on Higher Education in the Philippines issued a memorandum stating that all Grade 12 graduates, regardless of their chosen strand or track in Senior High School, are qualified to pursue a college education.

As a result, many SHS graduates enroll a program not aligned to their SHS strand (Quintos et al 2020). Many institutions took notice when college students from non-STEM strands began enrolling in STEM-related programs, despite not having a STEM background in Senior High School. (Gaviola, et al 2023). Despite the aim of alignment between SHS strands and college courses, mismatches remain a significant issue for some students which is even higher between the strand of the learners during their senior high school and the course they enrolled in college (Quintos et al 2020).

Gaviola et al (2023) found out that there is a growing trend of college students from non-STEM senior high school strands opting to pursue STEM-related fields in higher education. This shift has drawn significant attention, as students transition from non-STEM backgrounds to disciplines in science, technology, engineering, and mathematics upon entering college. Rafanan, De Guzman, & Rogayan (2020) also stated that students pursuing science and mathematics in college often have better employment prospects and higher earning potential compared to those in other fields after graduation.

Several factors can influence secondary students in changing their academic or career paths (Gaviola et al., 2023). These factors may include personal motivations, socioeconomic circumstances, and external influences such as family and peers (Niu, 2017). Additionally, the perceived prestige of a particular field, its potential for high earnings, and job market demand can also play a crucial role in their decision-making process (Fatoki, 2014; Makhlouf & Mine, 2020). Students may also consider job stability and career opportunities (Gour et al., 2011; Song & Glick, 2004; Rababah, 2016; Melguizo & Wolniak, 2015), the reputation of the educational institution they attend (Llenares & Deocaris, 2014), and the availability of financial aid and scholarships (Gestiada et al., 2017; Bruno & Faggini, 2021; Dagang & De Mesa, 2017). These factors collectively shape students' academic and professional trajectories, influencing whether they remain in their chosen field or transition to a new one.

One program that non-STEM SHS graduates that often choose is the Bachelor of Secondary Education. Major in Science. BSED major in Science is a 4-year teacher education program that produces science teachers for the secondary level. This program has 73 units of major courses which includes: Genetics (4 units), Cell and Molecular Biology (4 units), Microbiology and Parasitology (4 units), Anatomy and Physiology (4 units), Inorganic Chemistry (5 units), organic chemistry (5 units), Biochemistry (3 units), Analytical Chemistry (5 units), Thermodynamics (4 units), Modern Physics (3 units), Electricity and Magnetism (4 units), Waves and Optics (4 units), Fluid Mechanics (3 units), Earth Science (3 units), Astronomy (3 units), Environmental Science (3 units), The Teaching of Science (3 units), Technology for Teaching and Learning 2 (3 units), Research in Teaching (3 units), and Meteorology (3 units) (CMO No. 75 s. of 2017).

Although extensive research has been conducted on career decision-making (Orbeta et al., 2019; Roxas, 2022; Mashige & Oduntan, 2011), transitions to STEM-related disciplines (Makhlouf & Mine, 2020; Ban, 2016), and the various factors driving these shifts (Niu, 2017; Fatoki, 2014; Makhlouf & Mine, 2020; Gour et al., 2011; Song & Glick, 2004; Rababah, 2016; Melguizo & Wolniak, 2015), there remains a significant gap in understanding the specific influences that lead non-STEM students to pursue STEM degrees in higher education (Gaviola et al., 2023) particularly in the Bachelor of Secondary Education major in Science (BSE Science) program. This study seeks to fill that gap by providing deeper understandings into the factors shaping such academic transitions. The findings of this study will serve as a basis for the preparation of career orientation program to assist students in deciding on their career path and a career awareness seminar in collaboration with other educational institutions particularly in senior high schools..

Objectives of the study

The primary aim of this study was to explore the factors influencing the non-STEM senior high school graduates in choosing BSE Science as their degree program. Specifically, this answered the following questions:

1. What is the profile of the respondents in terms of:
    i. Sex
    ii. SHS Strand
2. To what degree do the following factors influence the decision of non-STEM senior high school graduates to choose BSE science degrees over other academic paths:
    i. Career Opportunities and Job Security
    ii. Interest and Passion for Science and Technology
    iii. Family and Peer Influence
    iv. Perceived Prestige and Societal Expectations
    v. Colleges and Universities Where They Want to Enroll
    vi. Curriculum Offered in Senior High School (SHS)
3. Is there a significant difference between the profile of the respondent and the factors influencing their decision to choose BSE science degrees over other academic paths?

METHODOLOGY

Research design

This study utilized a descriptive research design, incorporating descriptive statistics, frequency counts, means, and comparative methods for data analysis. Descriptive research examines specific variables using different research techniques (Gaviola et al., 2023). This approach was applied to assess the extent to which various factors influenced non-STEM Senior High School graduates in selecting BSE Science as their degree program. Additionally, a comparative research method was employed to determine whether significant differences exist in these influencing factors when analyzed based on sex and SHS strand.

Respondents

The respondents of this study were the 196 non-STEM first year to fourth year BSE Science students enrolled in Pangasinan State University Lingayen Campus and Binmaley Campus during the academic year 2024-2025. Census sampling was utilized in this study to determine the number of respondents on the factors influencing the non-STEM senior high school graduates in choosing BSE Science as their Degree Program.

Table 1 Distribution of the respondents

Campus	First Year	Second Year	Third Year	Fourth Year	Total
Binmaley	22	26	32	25	**105**
Lingayen	23	28	23	17	**91**
Total					**196**

Table 1 above presents the distribution of students across different year levels in PSU Binmaley and PSU Lingayen Campus. Binmaley Campus has a total of 105 students, with the highest number in the third year (32) and the lowest in the first year (22). Meanwhile, Lingayen Campus has a total of 91

students, with the highest count in the second year (28) and the lowest in the fourth year (17). The overall student population across both campuses is 196, with a relatively balanced distribution across year levels.

Research instrument

A survey questionnaire was constructed and utilized by the researcher in this study. The survey questionnaire was based on the results of previous studies (Chang & Park, 2014; Kizilay, Yamak, & Kavak, 2018; Humayon, Ansari, & Raza, 2018; Tey, Cheah, & Moses, 202; Malaguial et al, 2023; Gaviola et al, 2023; Baguio et al, 2024); Por, Say, & Mov, 2024) and consisted of two parts. Part 1 included the demographics of the respondent, such as name, sex and their graduated senior high school strand. Meanwhile, Part 2 included the degree of influence of factors on non-STEM students in choosing STEM related programs/BSE Science program including career opportunities and job security, interest and passion for Science and Technology, family and peer influence, perceived prestige and societal expectations, universities and colleges where they want to enroll, and the strand offered in their SHS.

The questionnaire was evaluated by five experts to assess its content validity and acceptability using the Content Validity Index (CVI). Based on their evaluation, the survey questionnaire achieved an Item-Level Content Validity Index (I-CVI) ranging from 0.80 to 1.00 across all items, and a Scale-Level Content Validity Index/Average (S-CVI/Ave) of 0.92. These values exceeded the acceptable threshold of 0.78 for I-CVI and 0.90 for S-CVI/Ave, indicating that the questionnaire is both valid and suitable for use in the study.

Data gathering procedure

Upon the approval of the research proposal by the Board of Regents of the university, the researcher ask permission to the Campus Executive Director of the PSU Lingayen Campus and Binmaley Campus. The researcher used an online platform to distribute the survey questionnaire to the respondents. Once the participants completed and submitted their responses via Google Forms, the collected data underwent a comprehensive analysis. To uphold ethical research standards and protect participant confidentiality, all raw data were securely stored and later disposed of in accordance with institutional guidelines and standard research protocols.

Data analysis procedure

The study utilized a descriptive analysis to determine the factors influencing the non-STEM senior high school graduates in choosing BSE Science as their degree program. Furthermore, a comparative analysis was used to determine the significant difference in the factors influencing the non-STEM senior high school graduates in choosing BSE Science as their degree program when they are grouped according to sex and senior high school strand. In addition, the researcher used mean and frequency for descriptive analysis, and the Mann-Whitney U test and the Kruskal Wallis H test used by Gaviola et al (2023) in their study for comparative analysis.

RESULTS AND DISCUSSION

1. Profile of the respondents

Table 2 shows the distribution of respondents based on sex. It indicates that out of 196 participants, the majority are female, accounting for 142 individuals or 72.45% of the total. Meanwhile, male respondents comprise 54 individuals, making up 27.55% of the population. This indicates that a significantly higher number of females participated in the study compared to males, suggesting that more women may be inclined to pursue BSE Science.

Table 2: Sex distribution of the respondents

Sex	Number	Percentage
Male	54	27.55%
Female	142	72.45%
Total	196	100.00%

Table 3 shows the distribution of students across various Senior High School (SHS) strands, with HUMSS (Humanities and Social Sciences) being the most popular, comprising 111 or 56.63% of the total students. The TVL (Technical-Vocational-Livelihood) strand follows, accounting for 43 or 21.94% of the students. The GAS (General Academic Strand) has 27 or 13.78% of students, while ABM (Accountancy, Business, and Management) has the smallest proportion, with only 15 or 7.65%. This suggests that HUMSS is the preferred strand by a significant margin, while ABM is the least chosen strand among the group.

Table 3: SHS strand distribution of the respondents

SHS Strand	Number	Percentage
GAS	27	13.78%
HUMSS	111	56.63%
ABM	15	7.65%
TVL	43	21.94%
Total	196	100%

2. Degree of factors influencing the Non-STEM senior high school graduates in choosing BSE science as their degree program

Table 4a presents the degree of factors influencing the non-STEM Senior High School (SHS) graduates in choosing BSE Science as their degree program in terms of career opportunities and job security. The results indicate that non-STEM SHS graduates agreed that career opportunities and job security influenced their decision to pursue a BSE Science degree, with a total mean score of 3.82. The table also shows that respondents agreed that STEM fields, such as BSE Science, provide long-term job stability and security (3.97), suggesting that they view science-related careers as more reliable in the long run. Furthermore, they agree that STEM degrees offer better career advancement opportunities (3.92), reinforcing the idea that choosing a science-related program could lead to greater professional growth. Moreover, the respondents agreed that STEM fields offer higher salary opportunities (3.78). Additionally, the high demand for STEM professionals (3.76) influenced their decision, as they viewed it as a field with promising job prospects. Meanwhile, the belief that the competitive job market for non-STEM graduates pushed them to choose a STEM course received the lowest agreement (3.68). While job market competition was a factor, it was not the most decisive reason for their choice.

Table 4a: Degree of factors influencing the Non-STEM senior high school graduates in choosing BSE science as their degree program in terms of the career opportunities and job security

A. Career Opportunities and Job Security	Mean	Descriptive Rating
1. I believe STEM field such as BSE Science offer higher salary opportunities.	3.78	Agree
2. STEM fields such as BSE Science provide long-term job stability and security.	3.97	Agree
3. The high demand for STEM professionals such as BSE Science influenced my choice.	3.76	Agree
4. I believe STEM degrees such as BSE Science offer better career advancement potential.	3.92	Agree
5. The competitive job market for non-STEM graduates pushed me to choose a STEM course such as BSE Science.	3.68	Agree
Total	**3.82**	**Agree**

The result is consistent with the findings of Humayon, Ansari, & Raza (2018) and Gaviola et at (2023) that the job security and opportunities have a significant positive impact on many non-STEM graduates' decisions on pursuing STEM related college programs because compared to other non-STEM positions, employment in STEM-related occupations has escalated more in the different parts of the world (O'Rourke, 2021).

Table 4b shows the degree of factors influencing the non-stem senior high school graduates in choosing BSE Science as their degree program in terms of interest and passion for science and technology. The table reveals that the non-STEM SHS graduate agreed that the interest and passion for science and technology also influenced them to pursue a BSE Science degree, with a total mean

score of 3.95. It also shows that respondents were influenced by their desire to explore new knowledge, especially in scientific fields (4.14), suggesting that curiosity and the pursuit of learning are strong motivators for students shifting to STEM-related programs. Furthermore, the respondents agreed that their natural curiosity and interest in science and technology (4.04) influenced them to pursue BSE Science degree, reinforcing the idea that an inherent passion for the subject influences their academic choices.

Table 4b: Degree of factors influencing the Non-STEM senior high school graduates in choosing BSE science as their degree program in terms of the interest and passion for science and technology

B. Interest and Passion for Science and Technology	**Mean**	**Descriptive Rating**
1. I have a natural curiosity and interest in science and technology.	4.04	Agree
2. I enjoy problem-solving, which motivated me to pursue a STEM degree such as BSE Science.	3.71	Agree
3. I have always been fascinated by technological innovation	3.90	Agree
4. I have a desire to explore new knowledge, especially in scientific fields.	4.14	Agree
5. My personal experiences with science-related activities sparked my interest in STEM such as BSE Science.	3.94	Agree
Total	**3.95**	**Agree**

Moreover, the respondents' fascination with technological innovation (3.90) and personal experiences with science-related activities (3.94) also influenced their decision, indicating that exposure to science and technology further strengthened their choice to shift to a STEM course. Lastly, although it received the lowest mean rating, the respondents were also motivated to pursue a BSE Science degree because they enjoy problem-solving (3.71). The results imply that interest and passion for science and technology greatly affects the decision of many non-STEM graduates to pursue STEM related college programs which confirms the study of Fatoki (2014), Humayon, Ansari, & Raza (2018), Rafanan, De Guzman, & Rogayan Jr., (2020) and Tey, Cheah, & Moses (2020) that personal interest and STEM interest had statistically significant influences on students' decision to enroll STEM related courses. This also confirms the findings of Baguio et al (2024) that personal interest is important in students' decision-making regarding their degree programs.

Table 4c shows the degree of factors influencing the non-stem senior high school graduates in choosing BSE Science as their degree program in terms of family and peer influence.

Table 4c: Degree of factors influencing the Non-STEM senior high school graduates in choosing BSE science as their degree program in terms of the family and peer influence

C. Family and Peer Influence	***Mean***	***Descriptive Rating***
1. My family encouraged me to pursue a STEM degree such as BSE Science.	3.35	Slightly Agree
2. My friends or peers who chose STEM programs influenced my decision to take BSE Science.	3.14	Slightly Agree
3. I felt pressured by my family to pursue a prestigious STEM degree such as BSE Science	3.03	Slightly Agree
4. My community highly values STEM education, which motivated my decision to enroll BSE Science.	3.32	Slightly Agree
5. I was guided by a mentor who recommended pursuing a STEM field and enroll BSE Science.	3.22	Slightly Agree
Total	**3.21**	**Slightly Agree**

The results indicate that family and peer influence had a moderate impact on the decision of non-STEM graduates to shift to a STEM-related course like BSE Science, with an overall mean score of 3.21, categorized as "slightly agree". Among the factors considered, family encouragement (3.35) was the most influential, suggesting that while support from family played a role, it was not a decisive factor. Similarly, the perception that their community values STEM education (3.32) contributed to their decision, albeit to a limited extent. Additionally, guidance from a mentor (3.22) had some influence, though not overwhelmingly significant. Furthermore, the influence of friends and peers who chose STEM programs (3.14) was slightly acknowledged, but it was not also a strong motivating factor. Lastly, pressure from family to pursue a prestigious STEM degree (3.03) was among the least agreed-upon factors, implying that most respondents did not feel compelled by external

expectations. The results on indicators one to four are in contrasts with the results of the study of Humayon, Ansari, & Raza (2018) and Tey, Cheah, & Moses (2020) that family and friends are factors that influences the decision of students on pursuing STEM courses. On the other hand, indicator number five confirms the findings of Humayon, Ansari, & Raza (2018) that mentors did not have a statistically significant influence on both students' STEM interest and career choice intention. Overall, the results confirm the findings of Baguio et al (2024) that the influence of family members and relatives on the respondents' choice of degree program is relatively low which indicate an independence among the respondents in making decisions about their education and career paths.

Table 4d shows the degree of factors influencing the non-STEM senior high school graduates in choosing BSE Science as their degree program in terms of perceived prestige and societal expectations.

Table 4d: Degree of factors influencing the Non-STEM senior high school graduates in choosing BSE science as their degree program in terms of the perceived prestige and societal expectations

D. Perceived Prestige and Societal Expectations	***Mean***	***Descriptive Rating***
1. I believe STEM careers such as BSE Science are highly respected in society.	3.91	Agree
2. I chose a STEM course/BSE Science program because it is considered prestigious and intellectually challenging.	3.84	Agree
3. Society often emphasizes that STEM fields/BSE Science lead to success.	3.80	Agree
4. I believed that STEM/BSE Science careers were for high-achieving individuals.	3.75	Agree
5. I wanted to pursue a career in a field that is highly regarded within society.	3.92	Agree
Total	**3.84**	**Agree**

The result shows that prestige and societal expectations of a STEM related career, with an overall mean of 3.84, indicate that it is also an influencing factor to non-STEM graduates in pursuing a STEM related course. It also reveals that non-STEM graduates believe that STEM careers such as BSE Science are highly respected in society (3.91). The respondents also believed that a STEM course/BSE Science considered prestigious and intellectually challenging (3.84), will lead to success (3.80), for high-achieving individuals (3.75), and is highly regarded within the society (3.92). The results confirm the study of Funk and Parker (2018) that half of the general public believed that students who graduated STEM are more well-respected, better paid, and attract more of the brightest young people.

Table 4e shows the degree of factors influencing the non-STEM senior high school graduates in choosing BSE Science as their degree program in terms of college and university where they want to enroll. The results indicate that the colleges and universities where non-STEM students wish to enroll significantly influence their decision to pursue a STEM-related degree with an overall mean of 3.86. The table also shows that the respondents agreed that the reputation of universities offering strong STEM programs influenced their decision (3.75).

Table 4e: Degree of factors influencing the Non-STEM senior high school graduates in choosing BSE science as their degree program in terms of the college and university where they want to enroll

E. Colleges and Universities Where They Want to Enroll	***Mean***	***Descriptive Rating***
1. I was influenced by the reputation of universities offering strong STEM programs/BSE Science Program.	3.75	Agree
2. The location of the college/university where I enrolled a STEM-related course is easily accessible.	3.74	Agree
3. The opportunities for internships, research, industry exposure, and quality education at the university influenced my choice to pursue STEM/BSE Science.	4.09	Agree
4. The facilities and resources of the university, such as laboratories and technology, made STEM/BSE Science courses more appealing.	3.72	Agree

5. I was encouraged by peers or family members who were already enrolled in STEM programs/BSE Science at prestigious universities.	4.01	Agree
Total	**3.86**	**Agree**

Additionally, accessibility of the location of the college/university (3.74) and the opportunities for internships, research, industry exposure, and quality education at the university (4.09) influenced the decision of the non-STEM graduates to transition into STEM related program. Furthermore, the availability of modern facilities and resources, such as laboratories and technology, also contributed to their interest in STEM programs (3.72). Lastly, students were encouraged by peers or family members who were already enrolled in STEM program to pursue BSE Science program (4.01). The results confirm the findings of Por, Say, & Mov (2024) that graduate quality, learning environment, location, colleague recommendations, and university reputation are all significant considerations in students' decision-making process when choosing a university which also applies to non-STEM students pursuing STEM related programs.

Table 4f shows the degree of factors influencing the non-STEM senior high school graduates in choosing BSE Science as their degree program in terms of the curriculum offered in Senior High School. The results show that the curriculum offered in Senior High School (SHS) significantly influenced students' decisions to pursue non-STEM with an overall mean of 3.58. he results also show that students enrolled in a non-STEM strand solely because the STEM strand was unavailable at their senior high school, as reflected by the rating of 4.30.

Table 4f: Degree of influence of factors affecting Non-STEM senior high school graduates in choosing BSE science as their degree program in term of the strand offered in senior high school

F. Strand Offered in Senior High School (SHS)	***Mean***	***Descriptive Rating***
1. The STEM strand in Senior High School was not available at my school, so I chose a non-STEM strand.	4.30	Strongly Agree
2. I perceived the STEM strand as a difficult discipline, so I chose a non-STEM strand.	3.21	Slightly Agree
3. I was not aware of the importance of taking a STEM strand in SHS, and that influenced my choice of course in college.	4.19	Agree
4. I enrolled in a non-STEM strand because I don't have the specific skills related to STEM strand.	3.06	Slightly Agree
5. My interests during my senior high school years were focused on non-STEM fields, but they shifted significantly when I entered college.	3.12	Slightly Agree
Total	**3.58**	**Agree**

This highlights the lack of options for students who may have preferred a STEM pathway. Additionally, students perceived STEM as a difficult discipline (3.21), which also contributed to their choice. A lack of awareness about the importance of taking a STEM strand (4.19) further influenced their decision. While factors like perceived lack of specific STEM skills (3.06) and initial interest in non-STEM fields (3.12) also played a role, they were less significant. The results are consistent with the findings of Sidek et al (2023) that external factors such as availability of courses, the perceived difficulty of STEM disciplines, unawareness of the importance of strand, the absence of specific skills related to STEM, and internal factors such as motivation and interest played a significant role in the decision-making process of students. This infers that non-STEM students opt to enroll STEM related program because they may have developed an interest in STEM fields over time, despite initially choosing a non-STEM strand due to external constraints such as the unavailability of STEM options, perceived difficulty, or lack of awareness.

Table 5 shows the overall mean of the factors influencing non-STEM Senior High School graduates in choosing BSE Science as their degree program. The results indicate that several factors significantly influenced non-STEM Senior High School (SHS) graduates in choosing BSE Science as their degree program (3.71). The table also shows that non-STEM graduates agreed that career opportunities and job security influenced their decision in pursuing STEM related field such as BSE Science (3.82). Further, it also reveals that interest and passion for science and technology (3.95) is the most influential factor that helped the non-STEM graduates decide in pursuing STEM related program. Meanwhile, family and peer influence (3.21) are the least influencing factor in the decision-making

of non-STEM graduates in pursuing STEM related program. Moreover, perceived prestige and societal expectations (3.84) also play a notable role, as students recognize STEM careers as prestigious and see them as pathways to success.

Table 5: Grand weighted mean of the factors influencing Non-STEM senior high school graduates in choosing BSE science as their degree program

Factors Influencing Non-STEM Senior High School Graduates in Choosing BSE Science as their Degree Program	***Mean***	***Descriptive Rating***
A. Career Opportunities and Job Security	3.82	Agree
B. Interest and Passion for Science and Technology	3.95	Agree
C. Family and Peer Influence	3.21	Slightly Agree
D. Perceived Prestige and Societal Expectations	3.84	Agree
E. Colleges and Universities Where They Want to Enroll	3.86	Agree
F. Strand Offered in Senior High School (SHS)	3.58	Agree
Total	**3.71**	**Agree**

Additionally, the reputation of colleges and universities offering BSE Science programs (3.86), including the quality of their STEM faculties and facilities, also influences their decision. Lastly, the strand offered in Senior High School (3.58) also have a slightly lesser effect, suggesting that while this factor does matter, it is not as dominant in the decision-making process. The findings suggest that "interest and passion for science and technology" was viewed as one of the most influencing factor for non-STEM graduates to pursue a STEM related course which is consistent with the findings of Tey, Cheah, & Moses (2020) that personal interest in STEM was reported as the most important predictor of students' career choice. Meanwhile, the results confirm the findings of Baguio et al (2024) that the influence of family members and relatives on the respondents' career choice is relatively low which indicate an independence among the respondents in making decisions about their education and career paths.

3. Difference in the degree of influence of factors influencing Non-STEM senior high school graduates in Choosing BSE science as their degree program when grouped according to sex

Table 6 presents the difference in the degree of influence of factors on non-STEM SHS graduates in choosing BSE Science as their degree program in terms of career opportunities and job security, interest and passion for science and technology, family and peer influence, perceived prestige and societal expectations, colleges and universities where they want to enroll, and the curriculum offered in senior high school according to sex. The results of the Mann-Whitney U test reveal that there is no significant difference in the degree of influence in terms of career opportunities and job security, interest and passion for science and technology, perceived prestige and societal expectations, colleges and universities where they want to enroll, and strand offered in senior high school when group according to sex.

Table 6: Difference in the degree of the factors influencing Non-STEM senior high school graduates in choosing BSE science as their degree program when grouped according to sex

Variables	***Sex***	***n***	***Mean Rank***	***U***	***z***	***p***
A. Career Opportunities and Job Security	M F	54 142	97.44 98.90	3777	-0.162	0.871
B. Interest and Passion for Science and Technology	M F	54 142	105.81 95.72	3439.5	-1.118	0.264
C. Family and Peer Influence	M F	54 142	115.83 91.91	2898	-2.654	0.008
D. Perceived Prestige and Societal Expectations	M F	54 142	107.73 94.99	3335.5	-1.416	0.157
E. Colleges and Universities Where They Want to Enroll	M F	54 142	105.37 95.89	3463	-1.055	0.291
F. Curriculum Offered in Senior High School (SHS)	M F	54 142	107.06 95.25	3372	-1.308	0.191

These findings suggest that students from different genders share similar perceptions regarding these factors. However, the results show that there is a significant difference between males and females in terms of family and peer influence with a p-value of 0.008, indicating that gender may play a role in how family and peers influence their decision-making in choosing BSE Science as their degree program. Although the respondents slightly agreed that family and peer influenced their decision in choosing the BSE Science as their degree program, it was revealed that male respondents obtained a higher degree of influence than female respondents. Specifically, male respondents were more influenced by family and peer's encouragement, pressure, motivation, and guidance to enroll a BSE Science degree. This confirms previous studies that peer influence can also affect student's decisions in choosing courses because this is their way to feel accepted in the group (Rafanan, De Guzman, & Rogayan, 2020).

Table 7 presents the difference in the degree of influence of factors on non-STEM SHS graduates in choosing BSE Science as their degree program in terms of career opportunities and job security, interest and passion for science and technology, family and peer influence, perceived prestige and societal expectations, colleges and universities where they want to enroll, and the curriculum offered in senior high school according SHS strand. The results of the Kruskal-Wallis H test indicate that there is no significant difference among the SHS strands in terms of career opportunities and job security, interest and passion for science and technology, family and peer influence, perceived prestige and societal expectations, and colleges and universities where they want to enroll.

Table 7: Difference in the degree of the factors influencing Non-STEM senior high school graduates in choosing BSE science as their degree program when grouped according to SHS strand

Variables	***Strand***	***n***	***Mean Rank***	***x^2***	***df***	***p***
A. Career Opportunities and Job Security	ABM	15	128.47	6.312	3	0.097
	GAS	27	91.35			
	HUMSS	111	93.40			
	TVL	43	105.70			
B. Interest and Passion for Science and Technology	ABM	15	126.93	4.805	3	0.187
	GAS	27	104.37			
	HUMSS	111	94.59			
	TVL	43	94.98			
C. Family and Peer Influence	ABM	15	119.67	3.152	3	0.369
	GAS	27	104.41			
	HUMSS	111	96.90			
	TVL	43	91.53			
D. Perceived Prestige and Societal Expectations	ABM	15	108.47	0.519	3	0.915
	GAS	27	96.74			
	HUMSS	111	97.80			
	TVL	43	97.94			
E. Colleges and Universities Where They Want to Enroll	ABM	15	119.47	2.323	3	0.508
	GAS	27	97.70			
	HUMSS	111	97.25			
	TVL	43	94.91			
F. Curriculum Offered in Senior High School (SHS)	ABM	15	132.53	13.469	3	0.004
	GAS	27	117.56			
	HUMSS	111	87.09			
	TVL	43	104.13			

These findings suggest that students from different strands share similar perceptions regarding these factors. However, a significant difference was found between the Strand Offered in Senior High School and the factors influencing the non-STEM graduates in choosing BSE Science. This indicates that students from different strands have varying perceptions when choosing a STEM-related program, likely influenced by the unavailability of the STEM strand, their perception that STEM is too difficult or felt they lacked the necessary skills, unawareness of the importance of taking a STEM strand in Senior High School, and their interests in non-STEM fields during Senior High School but experienced a significant shift in their preferences upon entering college. This suggests that students' experiences with their respective SHS strand influences their perceptions and possible decision-making regarding their degree choices. Further, the results infer that students' initial strand choices in Senior High School do not necessarily determine their final career paths. Instead, their decisions

to shift to a STEM-related program like BSE Science are shaped by a combination of external factors and personal growth.

CONCLUSIONS

This study reveals that a larger proportion of females compared to males are choosing BSE Science as their degree. When considering the SHS strands, most respondents come from the HUMSS strand, followed by TVL, GAS, and the smallest proportion from ABM strand.

In terms of the factors influencing their decision, the respondents agreed that the most significant motivator was their personal interest and passion for science and technology which suggest that a natural curiosity and enthusiasm for the subject played a major role in their choice. It is likely that students prioritize personal interest and passion over their original academic track when selecting a college degree. This also suggests that despite being enrolled in non-STEM strands during Senior High School, students may develop a strong inclination toward science-related fields, leading them to pursue BSE Science degree program. This factor is closely followed by career opportunities and job security, perceptions of the prestige of STEM careers, including BSE Science, and the reputation of universities offering STEM programs. The least influential factors were the family and peer pressure, which suggests that these external influences had a moderate effect on students' decisions. These findings are in line with previous studies emphasizing the importance of personal interest and passion towards science in students' academic and career choices.

This study also reveals that students chose a non-STEM strand primarily because the STEM strand was unavailable at their senior high school which stresses the limited options for students who may have had an interest in pursuing a STEM path. Other factors, such as the perceived difficulty of STEM subjects and a lack of awareness about the importance of taking a STEM strand, also influenced the decision, though to a lesser extent.

Further, gender differences were observed in the influence of family and peer factors, with male respondents indicating a higher level of influence from family and peers compared to their female counterparts. However, no significant differences were found in other factors, such as career opportunities or interest in science, when grouped by sex or SHS strand.

Moreover, the findings also indicate a significant difference between the students' Senior High School non-STEM strand and the factors influencing them in choosing a STEM related program/BSE Science. It suggests that students' SHS strands impact their STEM-related program choices, influenced by accessibility, difficulty, skills, awareness, and shifting interests.

Recommendations

The findings of this study recommends that it is essential for educational institutions to promote awareness of STEM fields by offering a broader range of STEM tracks in Senior High Schools. Many students choose non-STEM strands due to the unavailability of STEM options, so schools should ensure that students have access to these tracks and provide informative campaigns to highlight the significance of pursuing STEM disciplines. Additionally, providing career counseling and guidance programs can help students better understand the career opportunities, job security, societal recognition that come with a STEM education, as well as the advantages and disadvantages of shifting a career and the advantages of properly choosing the correct strand aligned with their program of choice in college.

Further, strengthening the reputation and visibility of universities that offer STEM programs is also important. Universities and colleges should continue to enhance their prestige by showcasing successful alumni, highlighting their commitment to quality education, upgrading facilities, and producing highly competent graduates. Moreover, universities and colleges should provide targeted support for students transitioning from non-STEM tracks to STEM programs. This can include tutoring, peer mentoring, and bridging courses to help students catch up on foundational STEM knowledge and adapt to the academic rigor of these fields.

A study could be conducted to examine the academic performance of non-STEM students who transitioned into STEM-related fields, such as the BSE Science program. This research could explore the challenges these students face during their studies, including any gaps in foundational knowledge, difficulty adjusting to the STEM curriculum, and other academic or personal obstacles. It

could also investigate the strategies they employ to overcome these challenges, such as seeking additional support, utilizing resources, or developing new study habits.

DECLARATION OF CONFLICTING INTEREST

The author confirms that there are no conflicts of interest related to this study. There were no financial, professional, or personal influences that affected the research, analysis, or findings presented in this paper.

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