Environment and Social Psychology (2024) Volume 9 Issue 9
doi: 10.59429/esp.v9i9.2777

RESEARCH ARTICLE

Choosing science and mathematics programs in college: practical and psychological arbiters in career-pathing

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ABSTRACT

The objective of this exploratory qualitative research is to investigate the practical and psychological factors influencing students' decisions to pursue science and mathematics-based courses for their career paths. The study will focus on a sample size of 25 second-year students in Calbayog City who have chosen to continue with their chosen course after completing one year of study. To collect data, the study will use one-on-one interviews, a qualitative research method. This method will allow for a thorough investigation of the participants' experiences, viewpoints, and motives. Through one-on-one interviews, the researchers are able to acquire a thorough understanding of the factors that influence students' decision-making processes. The findings of this study will provide important insights into the practical and psychological factors that impact students' selections in science and mathematics courses. This information can be utilized to improve career advising programs and educational systems, as well as to guide students who are exploring comparable career options.

Keywords: choosing programs in college; science and mathematics programs; practical and psychological arbiter; career-pathing

1. Introduction

The significance of selecting an appropriate career path is increasingly recognized among the younger generation of students in the modern era. When making decisions about their future career and college major, students are faced with a multitude of factors that must be carefully considered[1]. Deciding on a college can be a challenging and occasionally uncertain process.

Choosing a college program is a crucial decision for school students, as it has the potential to shape their academic and career paths in the future[2]. Students are destined to choose which course to pursue. Students must make this decision when they consider what they want to do in the future. Because the course they have chosen determines their careers in the future[3].

The selection of a study program holds significant importance as it serves as the fundamental basis for an individual's career and professional growth. The decision at hand holds the potential to exert a significant impact on the trajectory of a student's future, particularly with regards to their academic achievements, self-

ARTICLE INFO
Received: Received: 24 April 2024 | Accepted: 27 May 2024 | Available online: 9 October 2024

CITATION
Verdeflor RN. Choosing science and mathematics programs in college: practical and psychological arbiters in career-pathing. *Environment and Social Psychology* 2024; 9(9): 2777. doi: 10.59429/esp.v9i9.2777

awareness, and career goals[4]. Factors significantly influence the students' decision making in choosing a pre-university program. Choosing a program provided by universities becomes a significant challenge[5].

Factors such as personal desires, interests, strengths, weaknesses, limitations, and skills play a vital role in making an informed choice[6]. Decision-making elements include passion, people, interest, financial reasoning, potential, locations, opportunity, and demand[3]. Factors of family, self-efficacy, personal interest and economic considerations exerted great influence on the choice of career. Career decision is one of the most significant turning moments in our lives since it dictates our future role in society and represents one of the most crucial procedures in our entire existence[7].

Career exploration significantly influences career choice, with social support and self-efficacy playing a role. This study suggests academicians and instructors should design pre-university curriculums, and teachers should initiate career exploration activities during students' learning[8] School programs or activities are suggested in order to augment the right career choices of students like symposia or seminars about career path and opportunities, job fair, and organize club like peer educators or counselors club through the guidance counselors or advocates.

2. Materials and methods

2.1. Research questions

1. In terms of your future career have you always wanted to take a science or mathematics-based course before college? Elaborate.

2. What are the practical factors which affects your decision to take up a science or mathematics-based course? Enumerate and explain each factors.

3. Did you consider your future career in choosing a science or mathematics-based course in college? Elaborate your reasons.

4. Have you ever thought of changing your course to a non-science or mathematics-based course during your freshman years? Elaborate why you change of did not change your mind in sticking with your course.

5. Are there motivational factors why you choose a science or mathematics-based course in college? Elaborate your answer.

6. What are the psychological factors why you stick to your science or math-based course after one year? Explain the factors.

7. Psychologically, can you imagine pursuing a non-science or mathematics-based course in college? Explain why or why you can't pursue it.

8. Is the future career part of your psychological consideration in choosing a science and mathematics-based course in college?

2.2. Literature review

Career decision-making is a significant component in forecasting college students' long-term growth. Professional decision-making self-efficacy has a mediating role, while professional goals moderate the effect[9]. Career decision-making is a challenging process that requires students to understand themselves[10]. Successful career development necessitates greater professional self-management, and modern career orientations emphasize the need of being self-directed, values-driven, and adaptable[11].

Selecting a college course requires deliberate and detailed analysis[12]. As a result, choosing a course that matches with personal goals is critical, as it enables the attainment of life goals and provides access to more acceptable career prospects, eventually leading to a comfortable existence with government benefits. Before deciding where to study, students must examine a number of factors[13]. Several factors may be considered in selecting a school and degree program, like quality education, the people in the environment, personal choice, and the accessibility of the school from students' residences[14]. One of the most essential considerations while picking a career is one's interests[15]. Students' own interest in a particular program, desire or aspiration in life, and credibility of the institutional certificate impact their choice of a program[16].

2.3. Methods

This study utilized a qualitative research design to explore students' experiences in choosing science and mathematics programs in college. The primary data collected provides insights into students' perspectives on career planning, highlighting the practical and psychological factors influencing their choices. This qualitative data offers useful insights into choosing programs in college. Clearly, social, cognitive, and teaching presences are highly prevalent in educational systems. Cognitive presence is the most remarkable component of humanized teaching[17]. Students can choose programs that stress integrity, excellent instruction, and student assistance by being aware about the consequences of academic integrity and successful teaching practices.

2.4. Research design

This study employs an exploratory design to assess the influence of practical and psychological factors on students' decision-making process. The exploratory design enables a flexible and open-ended approach to data collection, resulting in a wide range of narratives that offer valuable insights into career-pathing.

2.5. Sampling and participants

The study utilized purposive and convenience sampling techniques to select science and mathematics learners in their second year. Through purposive sampling, the participants chosen for the study were carefully selected based on specific criteria related to second-year science and mathematics learners from Calbayog City higher education institutions. This approach enabled the focused identification of individuals who could offer valuable perspectives and firsthand knowledge pertaining to the objectives of the study.

2.6. Instrument

Using one-on-one interviews with open-ended questions, the study intends to investigate the aspects of students' decision-making processes and the factors that influence their decisions. The study's goal with these interviews is to learn about the practical considerations that students make when choosing Science and Mathematics programs. Understanding the practical arbiters of professional pathing can help students traverse the academic world and make educated future decisions. **Table 1** presents the interview guide questions used in this study.

Table 1. Research instrument for one-on-one interview

Objectives	Interview Questions
1. Determine the practical factors of students in choosing science and mathematics-based course for career-pathing	A. In terms of your future career-have you always wanted to take a science or mathematics-based course before college? Elaborate. B. What are the practical factors which affects your decision to take up a science or mathematics-based course? Enumerate and explain each factors. C. Did you consider your future career in choosing a science or mathematics-based course in college? Elaborate your reasons.

	D.	Have you ever thought of changing your course to a non-science or mathematics-based course during your freshman years? Elaborate why you change of did not change your mind in sticking with your course.
2. Determine the psychological factors of students in choosing science and mathematics-based course for career-pathing	A.	Are there motivational factors why you choose a science or mathematics-based course in college? Elaborate your answer.
	B.	What are the psychological factors why you stick to your science or math-based course after one year? Explain the factors.
	C.	Psychologically, can you imagine pursuing a non-science or mathematics-based course in college? Explain why or why you can't pursue it.
	D.	Is the future career part of your psychological consideration in choosing a science and mathematics-based course in college?

Table 1. (*Continued*)

2.7. Data gathering procedure

During the interviews, the study used open-ended questions to enable participants to freely share their ideas, experiences, and viewpoints. With this method, participants can give thorough explanations and insights into the psychological and practical factors that influenced their decisions.

2.8. Data analysis

This study examined interview narratives from second-year students and used thematic analysis to gain a deeper understanding of their experiences, perspectives, and decision-making processes when selecting Science and Mathematics Programs in College. The study aimed to uncover recurring themes, common patterns, and significant factors that influenced the students' decision-making processes by analyzing the interview narratives through thematic analysis. This approach enabled a systematic organization and interpretation of the data, leading to the identification of key themes and a deeper understanding of students' experiences and perspectives in Science and Mathematics programs.

3. Results

Question 1. In terms of your future career have you always wanted to take a science or mathematics-based course before college? Elaborate.

Theme	Sub-Category	Number of Respondents	Description	Respondents Quotes
Interest in Science and Mathematics	Strong Interest in Science and Mathematics	16	Respondents with a strong inclination towards science and mathematics courses throughout their academic journey. They value the logical reasoning, meticulousness, and problem-solving skills that these subjects cultivate, seeing them as foundational for diverse career paths.	"Yes, I've always found myself inclined towards science and mathematics. These subjects have a certain logic and precision that appealed to my curiosity and problem-solving instincts." "In terms of my future career, I have always been interested in taking a science or mathematics-based course before college. I have a strong passion for understanding the natural world and solving complex problems, which aligns well with these fields." "Yes, I have always had a strong interest in science and mathematics-based courses even before college due to my natural curiosity and passion for understanding the world around me." "In the first instant during my high

				school days both of that are I wanted to take in college, science is my first choice than math because science and math are similarities, science have also solving such as physics while math has a hundred percent of problem solving."
Philosophically Inclined	Philosophical Approach	4	Respondents who are more philosophically inclined demonstrate a preference for subjects that involve logical, rational, and critical thinking. They are attracted to the broader analytical and problem-solving aspects that transcend specific disciplines.	"No, because I think I'm more on philosophically inclined type of person. The logical and rational approach."

Question 2. What are the practical factors which affects your decision to take up a science or mathematics-based course? Enumerate and explain each factors.

Theme	**Sub-Category**	**Number of Respondents**	**Description**	**Respondents Quotes**
Career Prospects and Job Opportunities	Strong Focus on Career and Financial Benefits	12	Respondents emphasize the value of pursuing science or mathematics courses for their potential to offer better job opportunities, higher salaries, and overall promising career prospects. They view these fields as financially and professionally beneficial.	"Several practical factors influenced my decision. Career Prospects in science and mathematics fields often have strong job prospects." "The practical factors that influenced my decision to take up a science or mathematics-based course is Job prospects: Science and mathematics fields often offer better job opportunities and higher salaries compared to other disciplines." "The practical factors that influenced my decision to pursue a science or mathematics-based course include the job prospects, transferable skills, and opportunities for research and innovation."
Philosophical and Logical Approach	Attraction to Logical and Philosophical Qualities	4	Respondents are drawn to science and mathematics due to their logical and philosophical attributes. They appreciate the fields' emphasis on objective reasoning, understanding the rationale behind phenomena, and seeking empirical evidence for accurate conclusions.	"Actually, science and math is not really my cup of tea however based on my degree which is science inclined. Probably, it is the logical side because I'd like to think something objective and not mainly depending on subjective."

Influencing Factors on Scientific Understanding and Attitude	Influenced by Educational and Societal Factor	4	Respondents discuss various factors influencing their decision to pursue science or mathematics courses, including education, national scientific activity levels, logical reasoning, field dependence and independence, prior knowledge, and attitudes towards science.	"Influence scientific understanding and attitude include education, national levels of scientific activity, logical thinking, field dependence/independence, prior knowledge of the topic, and the science attitude of students

Question 3. Did you consider your future career in choosing a science or mathematics-based course in college? Elaborate your reasons.

Theme	Sub-Category	Number of Respondents	Description	Respondents Quotes
Career Diversification and Skill	Importance of Diverse Career Options	12	Respondents acknowledge that a science and math education provides critical skills and knowledge applicable in various fields such as data analysis, engineering, and research, enhancing their job market flexibility and future career prospects.	"Yes, I did consider my future career. I knew that a strong foundation in science or mathematics could open doors to numerous fields such as engineering, research, or technology." "Yes, I did consider my future career when choosing a science or mathematics-based course in college. I believe that these courses provide a strong foundation for a wide range of career paths. By studying science or mathematics, I can acquire the knowledge and skills necessary to pursue a career in research, engineering, data analysis, or any field that requires analytical thinking and problem-solving abilities." "My future career was a significant consideration when choosing a science or mathematics-based course. I wanted to ensure that my education would provide me with the necessary knowledge and skills for a wide range of career opportunities."
Personal Interest and Passion	Passion and Enthusiasm for the Subjects	8	Respondents express a strong personal interest and passion for science and mathematics, which significantly influence their choice of courses. Their enthusiasm drives their academic and professional aspirations in these fields.	"Having it in my college degree I'd say yes because it something finding facts the signs and symptoms and the root from it came from." "Yes of course I consider myself to take that both in the future career but I chose mathematics, because in my present I'm also an engineering student. I love math, you know, it's a very difficult and hardest course. I'll never think negatively that lose my

				confidence to take that course. I just think positive, study hard, listen to the instructor, because all of the problem-solving in math are just like our problems that we have so you need to solve to get the final answers. It depends on the formula. But all of that is my dream to become a civil engineer in the future."

Question 4. Have you ever thought of changing your course to a non-science or mathematics-based course during your freshman years? Elaborate why you change of did not change your mind in sticking with your course.

Theme	**Sub-Category**	**Number of Respondents**	**Description**	**Respondents Quotes**
Overcoming Challenges and Embracing Personal Growth	Enduring Difficulties for Growth	4	Respondents faced early challenges in their science or mathematics courses but chose to persevere, recognizing that overcoming these obstacles was essential for their personal growth and academic success.	"I did have moments of doubt in my freshman year due to the challenging nature of the course. But I didn't change my course because I realized that these challenges were helping me grow and that I was still passionate about the subjects."
Passion and Long-term Career Goals	Motivation by Interest and Career Alignment	8	Respondents were driven by a deep interest in science or mathematics and the alignment of these subjects with their long-term career goals. They found the intellectual challenges stimulating and believed in the value of perseverance.	"During my freshman years, I did not consider changing my course to a non-science or mathematics-based course. I was motivated to stick with my chosen course because I had a deep interest in the subject matter and believed it aligned with my long-term career goals." "During my freshman years, I never considered changing my course to a non-science or mathematics-based field. I was deeply passionate about the subjects and found them intellectually stimulating. I had a clear vision of my career goals, which motivated me to stick with my chosen course."
Clear Vision and Commitment	Strong Sense of Purpose and Dedication	4	Respondents had a clear vision of their career goals from the start and were committed to their science or mathematics courses. Their dedication helped them overcome any initial doubts or obstacles they faced during their freshman years.	"No, since my preferred course is already fixed in my mind."
Happiness and Satisfaction with the Chosen Course	Enjoyment and Satisfaction	4	Respondents expressed a high level of satisfaction and enjoyment with their chosen	"No, I'll never thought of changing course. I'm kinda happy and enjoy my course as an engineering student

	with Course Choice		science or mathematics courses. They felt their programs were interesting and aligned with their goals, and their satisfaction reinforced their decision to persist.	and I will finish this in God's will."

Question 5. Are there motivational factors why you choose a science or mathematics-based course in college? Elaborate your answer.

Theme	**Sub-Category**	**Number of Respondents**	**Description**	**Respondents Quotes**
Systematic Understanding	Systematic Understanding, Problem-solving, and Personal Growth	4	Respondents are motivated by the desire to understand the world systematically and logically. They are drawn to problem-solving and personal growth opportunities offered by science and mathematics.	"My motivation became stronger from a desire to understand the world in a more systematic and logical way, and the satisfaction I derived from problem-solving."
Social Contribution	Potential for Impact and Social Contribution	4	Respondents choose science or mathematics courses to contribute to societal improvement. They are motivated by the potential to make a positive impact on the world through their careers.	"Motivational factors that led me to choose a science or mathematics-based course in college Potential for impact: I believe that pursuing a career in science or mathematics can contribute to advancements in society and make a positive impact on the world."
Intellectual Curiosity	Intellectual Curiosity and Personal Fulfillment	4	Respondents are driven by intellectual curiosity and the pursuit of personal fulfillment. They enjoy engaging with complex concepts and find intrinsic value in exploring science and mathematics subjects.	"Motivational factors for choosing a science or mathematics-based course include intellectual curiosity and personal fulfillment."
Personal Growth and Empathy	Self-discovery, Helping Others, and Creating a Positive Environment	8	Respondents are motivated by self-discovery, the desire to help others, and the aim to create a positive environment. They are driven by empathy, personal development, and the desire to make a societal impact.	"It is because firstly, I'd like to know more the self, myself. Secondly, the help others with their mental needs. Lastly, to create good environment for everyone if possible. "Yes, sound of motivational factors that I choose mathematics major subject are so encouraged me to study go to school to listen the professor as well to get a higher score or grade not just a higher grade as long as you passed."

Question 6. What are the psychological factors why you stick to your science or math-based course after one year? Explain the factors.

Theme	Sub-Category	Number of Respondents	Description	Respondents Quotes
Resilience, Intellectual Challenge, and Growth Mindset	Commitment Through Resilience and Growth Mindset	4	Respondents maintained their commitment to their science or math-based courses due to their resilience, growth mindset, and satisfaction from overcoming intellectual challenges. These factors enabled them to develop a positive attitude towards their chosen courses.	"The psychological factors that kept me on the course were resilience, the satisfaction of overcoming intellectual challenges, and the growth mindset that I developed."
Passion, Interest, and Enjoyment	Engagement Through Passion and Interest	8	Respondents' enthusiasm and interest in their chosen fields motivated them to continue learning and developing. Their enjoyment of the subjects and tasks kept them engaged and driven throughout their academic journey.	"The psychological factors that contribute to my commitment to my science or math-based course after one year: Passion and interest: I genuinely enjoy studying and exploring the subjects within my chosen field. This passion drives me to continue learning and growing in my knowledge."
Understanding Human Behavior and Diverse Interests	Curiosity About Human Behavior and Career Diversity	4	Respondents were driven by their curiosity about human behavior and the variety of career opportunities in their field. They found the material interesting and relevant to their interests, which kept them engaged and focused on their academic goals.	"The interest maybe because understanding human behavior is interesting for me. The nature of work it deals with various people with different stories."
Happiness and Enjoyment of Challenging Coursework	Satisfaction with Challenging Coursework	4	Respondents remained committed to their engineering or mathematics courses due to their happiness and enjoyment of the challenging coursework. They found satisfaction in overcoming difficulties and were motivated to continue learning and growing in their field.	"Because I'm happy and enjoyed taking Engineering major mathematics you know is kinda hard but I loved it. I'd rather continue and not give up."

Question 7. Psychologically, can you imagine pursuing a non-science or mathematics-based course in college? Explain why or why can't you pursue it.

Theme	Sub-Category	Number of Respondents	Description	Respondents Quotes
Interest in Science and Mathematics	Strong Interest and Aptitude in Science and Mathematics	12	Respondents with a strong interest and aptitude in science and mathematics. They find these subjects	"While I can imagine the value of a non-science or mathematics-based course, my interests and strengths are firmly rooted in science and mathematics. It's where I find

Theme	Sub-Category	Number of Respondents	Description	Respondents Quotes
			intellectually challenging, personally fulfilling, and aligned with their skills and career aspirations.	the most satisfaction and see the most potential for myself. Psychologically, I cannot imagine pursuing a non-science or mathematics-based course in college. This is because I have a strong interest and aptitude for science and mathematics, and I believe that these fields align with my skills and career aspirations. Pursuing a non-science or mathematics-based course would not provide the same level of fulfillment and intellectual stimulation for me. Psychologically, I cannot envision myself pursuing a non-science or mathematics-based course in college. I find great fulfillment in exploring scientific principles and solving mathematical problems."
Diverse Interests	Openness to Explore Other Subjects	4	Respondents who mentioned diverse interests, particularly in philosophy. They are willing to consider courses outside science and mathematics due to their broad range of interests and openness to new experiences.	"I think I can since from I've said I also like philosophy. It's all about exploring the fundamental aspects of existence, knowledge, values, reason, mind, and language."
Current Focus on Science/Math	Already Pursuing a Science or Mathematics-based Course	4	Respondents who are currently pursuing science or mathematics-based courses, such as engineering. They find it difficult to imagine switching to a non-science or math-based course given their current focus.	"I've never experienced pursuing both of that I followed my dreams and I pursue my future engineering."

Question 8. Is the future career part of your psychological consideration in choosing a science and mathematics-based course in college?

Theme	Sub-Category	Number of Respondents	Description	Respondents Quotes
Career Opportunities	Career Opportunities and Professional Success	12	Respondents consider future career prospects as a major factor in choosing a science and mathematics-based course. They believe these fields offer a wide range of	"Yes, the future career was a major consideration. I saw a science and mathematics-based course as a pathway to a wide range of promising and fulfilling careers." "Yes, the future career prospects are part

			career opportunities and provide a solid foundation for professional success.	of my psychological consideration in choosing a science and mathematics-based course in college. I believe that these fields offer a wide range of career opportunities and provide a solid foundation for professional success. Considering the future career prospects helps ensure that I am making a practical and informed decision about my education and future career path." "Yes, future career prospects are indeed a significant part of my psychological considerations in choosing a science and mathematics-based course. I want to ensure that my education aligns with my career goals and provides me with the necessary skills and knowledge to succeed in my chosen field."
Combining Interests	Combining Diverse Interests with Career Considerations	4	Respondents are open to studying a science or mathematics-based course while also pursuing their interests in non-science subjects like philosophy. They balance their wide range of interests with practical career considerations.	"Yes, thinking about what job I want in the future does play a part in why I chose to study science and math in college. Even though I lean more towards philosophy and thinking deeply about things, I know that having a science degree can help me in my career."
Specific Career Path Focus	Focus on Specific Career Path within Science/Math Course	4	Respondents have a clear focus on a specific career path within a science or mathematics-based field. They choose their courses based on their career goals, finding fulfillment and readiness to tackle field-specific challenges.	"Yes is the number one career part of my psychological choosing the mathematics major based on my course, because in civil engineering has lot of mathematics problems I've enjoyed and happy to take that in college and I'm ready to face the problem according to mathematics."

4. Discussion

Question 1. In terms of your future career have you always wanted to take a science or mathematics-based course before college? Elaborate.

The study reveals two distinct categories of individuals' academic inclinations towards science and mathematics. Sixteen respondents expressed a strong interest in science and mathematics, valuing their logical reasoning, precision, and problem-solving abilities. They believe a thorough understanding of these fields can open doors to diverse career opportunities. Four respondents were philosophically inclined, valuing logical and rational thinking, and a preference for disciplines that prioritize critical thinking and analysis. The responses reveal a diverse range of perspectives and preferences among individuals, highlighting a rich tapestry of academic interests and aspirations. Changes in science and mathematics are of great importance to policymakers. Due to the topics' influence on scientific research and technological innovation, which makes them vital to economic competitiveness, education[18]. It takes reflection to practice

philosophy. The fact that many philosophers have asserted that contemplation is crucial to forming and even enhancing our philosophical thinking may therefore not come as a surprise[19].

Question 2. What are the practical factors which affects your decision to take up a science or mathematics-based course? Enumerate and explain each factor.

The study reveals that practical factors influencing individuals' decisions to pursue science or mathematics-based courses are multifaceted and diverse. Career prospects and job opportunities are significant, with 12 respondents highlighting the value of these fields due to their promising career paths, higher salaries, and increased job opportunities. Four respondents prefer a philosophical and logical approach, valuing the logical qualities of science and mathematics. Influencing factors on scientific understanding and attitude include educational background, scientific activity in their country, logical reasoning skills, field dependence, prior knowledge, and attitudes towards science. These perspectives highlight the complex interplay of personal, professional, and societal factors that influence academic choices in science and mathematics. Students will choose alternative courses or majors based on characteristics such as their degree of competence, self-efficacy, and vocational interests[20].

Question 3. Did you consider your future career in choosing a science or mathematics-based course in college? Elaborate your reasons.

The study reveals that individuals' decisions when choosing science or mathematics-based college courses are influenced by two main factors. Firstly, career diversification and skill development are crucial, as they broaden job prospects and enhance skills. These courses equip individuals with essential knowledge applicable across various fields. Secondly, personal interest and passion drive these choices. These individuals see science and mathematics as avenues to fulfill their aspirations and realize their career goals. The complex interplay of career aspirations, personal passions, and educational goals influences individuals' choices in selecting science or mathematics-based courses. The decisions they make regarding their upcoming math, science, and technology coursework will have a lasting impact on their success in the classroom and in their careers[21].

Question 4. Have you ever thought of changing your course to a non-science or mathematics-based course during your freshman years? Elaborate why you change of did not change your mind in sticking with your course.

The study reveals that individuals' decisions to change their course to a non-science or mathematics-based field during their freshman years are influenced by several key themes. These include overcoming challenges and embracing personal growth, passion for science or mathematics, alignment with long-term career goals, clear vision and commitment, and happiness and satisfaction with the chosen field. Despite initial doubts and difficulties, these individuals persevered and remained committed to their academic paths. They viewed these challenges as opportunities for personal development and growth, driven by their passion for the subjects. They also emphasized the alignment of their chosen courses with their long-term career aspirations, fueled by intellectual stimulation and challenges. Lastly, they expressed a high level of happiness and satisfaction with their chosen fields, highlighting the value of their educational journey in fostering personal and professional growth. Personal Development Planning (PDP) is seen as an integral tool in placing the responsibility to analyze, track, and continuously develop academic skills[22] Passionate people have the capacity to demonstrate great levels of perseverance and constancy toward their interests – that is, to be persistent – in relation to the personal goals they set for themselves[23]. Students who were satisfied with their academic majors shown stronger study commitments.

Question 5. Are there motivational factors why you choose a science or mathematics-based course in college? Elaborate your answer.

The study reveals that four key motivations for pursuing science or mathematics-based courses in college are systematic understanding, problem-solving, personal growth, potential for impact and social contribution, and intellectual curiosity and personal fulfillment. These factors drive individuals to approach the world methodically, seek personal growth, and make a positive difference in society. They also believe that pursuing these fields can lead to significant societal advancements and improvements. The intrinsic value of delving into complex ideas and concepts drives these individuals to pursue knowledge and understanding in these fields. Pathways for college and job readiness are created by core academic subjects in science, math, language, and social studies[24].

Question 6. What are the psychological factors why you stick to your science or math-based course after one year? Explain the factors.

The study found that resilience, intellectual challenge, and a growth mindset are key psychological factors that contribute to individuals persisting in science or math-based courses after one year. These individuals maintain their commitment by adapting and growing, fostering a positive attitude towards their chosen courses. Passion, interest, and enjoyment are also significant psychological factors, driven by a deep-seated interest in the subjects and genuine enjoyment of the coursework. Understanding human behavior and diverse interests is another influential factor, as these individuals find the material interesting and relevant to their personal interests. Finally, the happiness and enjoyment of challenging coursework are also key psychological factors. The psychological components of teaching and studying science and mathematics are critical in raising the standard of students' learning capacities in schools[25].

Question 7. Psychologically, can you imagine pursuing a non-science or mathematics-based course in college? Explain why or why you can't pursue it.

The study reveals that individuals with strong interests in science and mathematics are more likely to pursue non-science or mathematics-based courses in college. These individuals find fulfillment, intellectual challenge, and personal development opportunities in these fields. However, they also have diverse interests and are open to exploring other subjects, such as philosophy or non-science fields. Interestingly, four respondents are already pursuing a science or mathematics-based course, particularly in engineering, which limits their ability to envision pursuing non-science or mathematics-based courses. However, they acknowledge that interests and experiences change over time. Career goals were positively correlated with favorable evaluations of STEM workers, who also acted as a mediator between media consumption and educational options and career aspirations[26]. The third group, currently enrolled in engineering, acknowledges that their experiences and interests may change over time. The idea of interest is crucial to conversations about learning and growth in both psychology and education as well as in daily thought[27].

Question 8. Is the future career part of your psychological consideration in choosing a science and mathematics-based course in college?

The study reveals that individuals' psychological considerations when choosing a science and mathematics-based college course include career opportunities, professional success, combining diverse interests with career considerations, and focusing on specific career paths. Twelve respondents prioritized future career prospects and aligned their education with job ambitions, while four emphasized the practicality and relevance of a science degree. Four respondents focused on specific career paths within science or mathematics, particularly in fields like civil engineering that involve significant mathematical problem-solving. These perspectives highlight the complex interplay of personal aspirations, academic interests, and

professional goals that inform individuals' decisions in selecting science and mathematics-based courses. This highlights the importance of balancing practicality, passion, and strategic career planning in academic journeys. It is advised that programs for career counseling be created that can assist individuals in developing their sense of self[28].. Interest is a crucial professional factor that can significantly influence students' career guidance and motivation[29]. Selecting a career path that is both effective and efficient requires a thorough understanding of one's own abilities, as well as potential possibilities and problems, the connections between information and knowledge, and potential changes and challenges because it has such a significant impact on the individual and society at large[30].

5. Conclusion

The survey reveals a diverse range of academic preferences towards science, mathematics, and philosophical thinking, with some favoring logical problem-solving and others valuing critical thinking and analysis, resulting in a diverse range of academic interests. Individuals' decisions to pursue science or mathematics courses are influenced by various personal, professional, and societal factors, including career prospects, philosophical approaches, and broader scientific understanding. Individuals' decisions to choose science or mathematics-based college courses are influenced by a combination of practical and personal factors. Some prioritize career diversification and skill development, while others are driven by personal interest and passion, highlighting the complex interplay between career aspirations and educational goals. During freshman years, individuals' commitment to science or mathematics courses is influenced by personal growth, passion, alignment with career goals, clear vision, and satisfaction. These motivations reflect resilience, dedication, and fulfillment in their educational journeys. Individuals' motivations for choosing science or mathematics-based college courses are diverse, involving factors like systematic understanding, problem-solving, personal growth, impact potential, intellectual curiosity, innovation, career prospects, professional development, intellectual challenge, and academic excellence, reflecting their interests and goals. Persistence in science or math courses after a year is influenced by psychological factors like resilience, intellectual challenge, passion, understanding human behavior, diverse interests, happiness, personal growth, and alignment with career goals, fostering fulfillment and purpose. Individuals' college exploration of non-science or mathematics-based courses is influenced by factors like strong interest in science and mathematics, diverse interests, current pursuit, career goals, curiosity, and flexibility, reflecting personal interests, career aspirations, and intellectual curiosity. Individuals' decisions to choose a science and mathematics-based college course are influenced by career opportunities, professional success, diverse interests, and specific career paths. These perspectives highlight the complex interplay of personal aspirations, academic interests, and professional goals, reflecting practicality, passion, and strategic career planning.

Conflict of interest

The authors declare no conflict of interest**.**

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