

# Relationship of Personality and Study Orientation of College Shiftees from the Science and Technology Cluster

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## Abstract

This study aimed to determine the relationship between personality preferences and study orientation among the 71 undergraduate shiftees from the Science and Technology cluster. It also highlighted the participants' profile characteristics, which include their prevalent concerns, coping strategies, and personality character traits. The findings showed that academic concerns were the most common among students, and they usually resort to screen-related activities to cope with stress. Most students describe themselves as self-conscious and nervous. Furthermore, the Myers-Briggs Type Indicator (MBTI) and the Survey of Study Habits and Attitudes (SSHA) were administered to the participants. Most of the students are more likely to have an Introvert-Sensing-Thinking-Judging (ISTJ) personality preference. Using the Mann-Whitney U test, the findings indicate that students' study orientation is satisfactory in meeting the requirements of the university. Moreover, the study habits and study orientation differ statistically significantly in judging vs. perceiving with the results favoring judging based on the medians. A statistically significant difference was observed between study attitudes scores and personality preferences, particularly inclining for introverts and judging. The findings provide important insights for educators and counselors to explore students' personality traits that can be considered in planning course design and in developing career intervention programs.

**Keywords:** Personality type, Study orientation, Science and Technology, Career education, College shiftees

## Introduction

College is a period of exploration and career development (Wang, 2023). Choosing a course in college is a tough decision for students in senior high school. Various factors are considered before finally pursuing a degree program in college, such as passion, interest, environment, significant people, financial opportunities, and abilities (Quinlan & Corbin, 2023; Arcinas et al., 2018). In addition, Fong (2012) asserts that a person's personality is crucial in determining his or her career aspirations and can also affect a person's attitude toward career choice commitment. These results were also supported by Owusu et al. (2023), who found a statistically significant correlation between university students' characteristics and their choice of career.

Although various decision-making variables are considered when selecting a course, not all students will be able to complete their first-choice course. Some students may start to doubt their decision to pursue

their chosen program as they attend classes and engage in various academic tasks. It is inevitable for students to become confused about their chosen course when they encounter difficult academic requirements and their expectations do not align with reality. The initial factors that students consider when choosing a degree program may change. As they age, students' interest and passions evolve, prompting them to think of alternative pathways (Sarona-Pedro and Villanueva, 2025). In their academic performance, some begin to question their learning abilities and behaviors that they consider essential in pursuing their chosen program. Some students who cannot cope academically with their course may consider shifting from one program of study to another (Maina, 2020). According to Tinto (cited in Davis, 2020; 1993), the student's retention from the first to the second year is a consistent indicator of success, and the first year is one of the most important periods for building the groundwork for future success and perseverance. Some incoming first-year students may not be able to complete their degrees because they lack adequate academic or social abilities (Davis, 2020). As a result, one of the options they may consider is to shift courses. Cited in the study of Maina (2020; Fizer, 2020), academic ability and skill are necessary prerequisites for success for various programs, including engineering, law, and health sciences.

### **Purpose of the study**

The purpose of the research was to determine the learning orientation and personality characteristics of college students who expressed interest in shifting to another program of study. It aimed to determine whether the study orientation of students who intend to shift to a different program, including their study habits and study attitudes, was correlated with their Myers-Briggs Personality Inventory (MBTI) personality preferences. Additionally, the findings would help identify students' learning attitudes and how they manifest in their behavior, which could impact their academic performance. The research also included finding common concerns among participants, their coping strategies with stress, and the traits they perceived to be characteristic of themselves.

### **Statement of the Problem**

The research questions for this study were as follows:

1. What are the common concerns and coping strategies of students who intend to shift to another program?
2. What are the most frequent adjectives that best describe their personality characteristics?
3. What are the most dominant MBTI personality preferences of college shiftees from the Science and Technology cluster?
4. What is the level of study orientation of students who intend to change their current major?
5. Is there a significant difference in the median scores on study habits, study attitudes, and study orientation of the four dichotomies in MBTI personality preferences [Extraversion(E) vs. Introversion (I), Sensing (S) vs. Intuition (N), Thinking (T) vs. Feeling (F), and Judging (J) vs. Perceiving (P)]?

### **Significance of the study**

The findings of the study can significantly address the research gap in guiding students in course selection by providing a more individualized and holistic approach to career counseling. Data from the results can be used to design career intervention programs for students' career planning and to develop strategies that will help them establish a positive and effective attitude toward learning. Moreover, educators can also

consider the value of personality in designing their course and learning activities, particularly in the science and technology field.

### **Literature Review**

A shifting occurs when a student first selects one option from a list of courses, then decides to change their mind and choose another (Maina, 2020). Some students shift majors as a result of talking to other students about the drawbacks of their current majors (Jaradat, 2017). Numerous studies demonstrate that changing a student's course of study can have both beneficial and detrimental implications on families, universities, businesses, and society at large (Maina, 2020). Among the positive benefits are connection to the university, satisfaction with the course of study, reduced academic stress, and reduced mismatch in the workplace (Maina, 2020; Robst, 2007; Domadenik et al., 2013; Baik et al., 2015). However, the downsides are the possibility of graduation delays and higher tuition costs, which can put a strain on families. If education is funded by the government, it can result in a waste of money from taxpayers (Maina, 2020). According to Jaradat (2017), students' decisions to shift majors can be attributed to a variety of factors, including their inability to succeed academically, the impact of words as they converse with parents and other students about their current majors, and their expectations for employment and income after graduation.

In addition, one factor that is likely to significantly impact their educational performance is the shift from the traditional face-to-face learning method to the online platform. The challenges of navigating the changes that occurred in their learning method and environment may have had a significant adverse impact on their overall effectiveness towards their learning performance. According to Finnegan (2021), the online environment had negative effects on the students' perceptions of their achievement in their learning objectives. In his study, he found that the abrupt changes in the learning environment, particularly regarding interaction with others and equal access to information contributed to students' poor perceptions of their academic performance. Furthermore, the research conducted by Bibi & Ghafar (2025) has shown that higher education institutions in Mardan, Khyber Pakhtunkhwa, Pakistan encounter challenges such as maintaining student engagement, managing self-directed learning, and interacting with instructors in online settings. According to Patel et al. (2023), adolescents who spend 3 hours per day in front of a computer screen may see a decline in their academic performance.

It is also important to consider that one of the reasons for students' wrong choice of major may be the limited guidance regarding course selections (Maina, 2020). Shertzer (1981) defines guidance: "It is the process of helping an individual to understand themselves and their world. It is a term applied to a total school program of activities and services aimed at assisting students to make and carry out adequate plans and to achieve satisfactory adjustment in life." In relation to this, Kochhar (cited in Aquino, 2011; 2000) considers guidance as necessary to assist the student with particular issues, such as a lack of connection between aptitude and success, deficiencies in one or more academic courses, poor study habits, ineffective approaches to learning, and low motivation.

### **Personality and Academic Performance**

Making decisions about one's academic career helps college students make better choices, improves their ability to transition through college, and is associated with factors related to mental health (Dieringer et al., 2017; Hinkelman & Luzzo, 2007; Walker & Peterson, 2012). However, the decision to change a course taken by some college students adds to their academic worries. Other studies have shown that mental

health concerns have become a source of challenges when choosing a career (Lucas, Skokowski, & Ancis, 2000). It can lead to frustration, particularly if their preferred courses or programs of study have restrictions (Maina, 2020). In addition, different colleges will have varying requirements for qualifications when it comes to shifting to another program. They must again make important choices and gather information to aid in their critical career decision-making.

Some research indicates a correlation between introverted and extroverted personality traits and academic performance. Enang (2024) reported a significant correlation between the academic success of biology students and their extraverted and introverted personality traits. The study's results indicate that biology teachers ought to collaborate with the school administration to identify and select students displaying extraverted personality traits for suitable referrals to school counselors and other qualified therapists to enhance their academic performance. This finding aligns with the research conducted by Chamorro-Premuzic, and Furnham (2004), which identified a negative correlation between academic achievement and extraversion. Conversely, the research conducted by Parveen et al. (2024) demonstrated a strong positive correlation between extroversion and academic performance. According to Nasution et al. (2025), the extroverted students excelled in mathematical problem-solving in mathematical statistics courses compared to their introverted counterparts, who faced difficulties in planning and often forgot to review their solutions. Moreover, Shiksha and Nabin (2021) reported that academic success was significantly and positively correlated with extroverted characteristics.

Kin and Rameli (2020) assert that thinking is associated with the nature of the engineering profession, which requires a high degree of critical thinking and problem-solving skills to produce mechanical models that function well and can be applied in real-world situations. The findings also indicate that judging was the most prevalent among science majors at the undergraduate level. According to Kin and Rameli (2020), science undergraduates must be well-organized and mindful of the rules to reduce errors in their lab work, which may be explained by the logical and systematic framework of scientific studies. On the other hand, undergraduates studying architecture are more likely to possess the intuitive trait since they can produce innovative architectural designs by being creative and having a great deal of ideas (Kin and Rameli, 2020). According to Provost (cited in Orcutt, 2019; 1982), students who dropped out of college before graduating exhibited dominant preferences for introversion and perception. It was also reported that dominant judging preferences were found in individuals who completed their degree. According to the study's findings, this propensity would help students develop better study habits and organizational skills, which would improve their academic achievement and lower their likelihood of dropping out (cited in Orcutt, 2019; Provost, 1991). Similar to previous studies, there is a substantial correlation between a person's MBTI-identified learning preferences and academic success (Varvel, Adams, Pridle, and Ulloa, 2004). According to Shi et al. (2007), the students identified with being extraverted or perceiving were substantially less likely to continue with their course completion than those classified as judging or introverted. Students who prefer judging are more likely to work in a structured environment and rely on logic. Students who like to work well alone and are given adequate time to concentrate on the topic at hand are described as introverts. The MBTI may be useful in identifying people who are good candidates for science education that explores the connection between personality types and students' academic achievement (Orcutt, 2018; Shi et al. 2007). According to Paredes & Arboleda's (2024) research, sensing and introverted types, such as ISTJ and ISFJ, were more prevalent among electrical engineering students than intuitive (N), extroverted types. Furthermore, underachievers in the said degree program occasionally had opposing extroverted, thinking tendencies like ESTJ, whereas academically high achieving individuals tended to display introverted,

sensing, feeling characteristics like ISFJ (Paredes & Arboleda, 2024). Roseti (1998) reported that students who pursue engineering predominantly exhibit ISTJ personality preference, and those of this type are more likely to finish the program within four years among Canadian engineering students. According to Fussel (2017), the dominant MBTI type among students pursuing aviation studies exhibits preferences for ISTJ. He also indicated in the same study that an introverted individual is more inclined to pursue a degree in a science discipline, such as science, technology, engineering, or mathematics, rather than in the liberal arts (Fussel, 2017).

### **Personality and Study Orientation**

According to Crede et al. (2008), the relationship between personality and study attitudes and habits implies that improved study attitudes and habits may act as a partial mediating factor between the impact of specific personality characteristics on academic achievement. The findings indicate that study attitudes and habits have only a moderate relationship with certain personality traits and have no relationship with cognitive capacity (Crede, 2008). The study by Aquino (2011) likewise showed the same result, which claimed that study attitudes and study habits are partially influenced by students' personality characteristics. On the other hand, study habits are significantly and positively affected by personality characteristics like warmth, engagement, emotional stability, obedience, focus, and meticulousness (cited in Lone, 2021; Kashinathrao, 2012). Hence, understanding the importance of personality characteristics and study habits that can affect and provide insight into individual career choices and decisions becomes important for students who are thinking of changing their major (Wang & Sheibani 2024; Francis & Village 2022).

### **Methodology**

The following methods and instruments were used to conduct the study:

For the purpose of this research, the researcher used purposive sampling. A total of 71 students from a public university enrolled in science and technology courses were given a career assessment as part of their preparation for shifting to another program. The age range of the 71 students was 18 to 25 years. The mean age of this group is 20.5 years ( $SD=1.58$ ), and 53.5% ( $n=38$ ) were female. The number of females who desire to change their career path is only marginally greater than that of males. Forty-four (62%) of them graduated from private high school, and twenty-three (32.4%) of them were in their third year of college when they took the career assessment. Their previous programs were in the fields of science and technology.

The profile characteristics of the participants included information about their gender, age, year level, type of secondary school institution (private or public), common concerns, coping strategies, and personality traits. Participants provided their consent by completing a Basic Information Sheet stating that personal information and other related information, such as career and psycho-social assessments, may be used for research purposes deemed to improve and create programs for student services.

All the students were administered two instruments. The following instruments were used: 1. Survey of Study Habits and Attitudes (SSHA)—Form H developed by Brown & Holtzman in 1969. Teacher approval, work methods, educational acceptance, and delay avoidance are the four factors that compose the hierarchical structure proposed by the SSHA. The combination of these factors results in two higher-level scores for study habits (work methods and delay avoidance) and attitudes (teacher approval and educational acceptance). Together, these two scores are then used to calculate an overall study orientation score.

2. The Myers-Briggs Type Indicator (MBTI) is a personality type indicator developed by Katherine Cook Briggs and Isabel Briggs Myers in 1962. MBTI, which divides people into sixteen personality types based on their distinct preferences for perception and decision-making, is based on Jungian psychological theory. The four preference pairs that make up the MBTI represent distinct facets of personality: opposing approaches to directing and receiving energy [Extroversion (E)] or [Introversion (I)], taking information [Sensing (S)] and [Intuition (N)], drawing conclusions [Thinking (T)] or [Feeling (F)], and approaching the outside world [Judging (J)] or [Perceiving (P)].

**Data**

**Analysis**

To ascertain whether two samples (groups) differ significantly from one another, statistical analysis was conducted using the Mann-Whitney U test. The data collected from the Survey of Study Habits and Attitudes (SSHA) and the Myers-Briggs Type Indicator (MBTI) was used to evaluate the hypotheses using Jamovi. The hypotheses were tested at 0.05 level of significance. Descriptive statistics to analyze participants' profile characteristics were also conducted, which include gender, age, type of secondary school institution (private or public), common concerns, prevalent coping mechanisms, and personality traits obtained from the basic information sheet.

**Results and Discussion**

**Commonly reported concerns and coping strategies**

The study shows that academics were the most prevalent concern for fifty-one participants (n=51), followed by issues with family (n=13), pressure from various sources (n=9), and financial concerns (n=6). According to their responses, their current concerns were related to their academic performance (n=61), life directions (n=46), motivation (n=41), study skills (n=32), and university adjustment (n=32). The decision to shift to a different degree program may have been influenced by these factors. These results support the findings by Aquino (2011) that claim that in order for students to learn effectively, they must not only understand proper study methods and practices (study skills) but also make consistent, intentional efforts (study motivation) and feel accountable for and grateful for their own learning process. Furthermore, social affinity and "fit" with the campus community are important components of academic success (cited in Orcutt, 2019; Sutton and Sankar, 2011).

It was revealed that in response to their worries and stress, they often engage in screen time activities (23.10%), sleeping (14.60%), doing their hobbies (13.10%), listening to music (10.80%), and others. Table 1 shows the frequencies and percentages of the usual coping strategies used by students.

**Table 1. Frequencies and percentages of student’s coping strategies**

Coping strategies	Counts	% of Total
Screen time (Watching videos/tv series, playing video games/social media)	30	23.10%
Sleeping	19	14.60%
Hobbies (writing, reading, cross stitching, drawing, sports)	17	13.10%
Listening to music	14	10.80%
Talking/hanging out with friends/family	11	8.50%
Eating	10	7.70%
Isolation	5	3.80%

Exercise	5	3.80%
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Table 1 shows that the majority of participants preferred to use screen time as a form of coping strategy to combat stress. Findings, therefore, indicate that they manage stressful situations through watching videos or TV series, playing video games, or engaging in their social media. Their engagement in screen time activities may have influences their academic performance. According to Patel et al. (2023), adolescents who engage in three hours of daily screen time may experience a decline in their academic achievement. Others prefer to sleep, do their hobbies (e.g., writing, reading, etc.), listen to music, spend time with their family and friends, eat, isolate themselves, and exercise. Additionally, one to four students reported that their coping mechanisms for stressful situations included resting, playing with their pets, crying, practicing mindfulness, participating in organizational work, and drinking.

### Participants' characteristics

From a list of adjectives, participants were also asked to choose ones that best described themselves. The majority of the participants characterized themselves as nervous (n = 47), self-conscious (n = 47), shy (n = 44), and quiet (n = 43). When faced with difficult or merely unfamiliar events, students experience significant levels of nervousness and tension. Feeling nervous is one of the typical signs and symptoms of anxiety. Students with high levels of anxiety can have their focus, knowledge acquisition, and academic achievement affected (Konwar, Sarma et al., 2023). Furthermore, being self-conscious can affect academic performance, social interaction, and self-esteem in several ways. Self-consciousness is related to a person's perception of themselves and other people's perceptions of them (Gotter, 2017). Additionally, forty-four students selected the word "shy," which can be associated with self-consciousness. According to Davis (2020), some new first-year students may not be able to finish their degrees due to poor social skills.

Their decision to change their degree program may have been influenced by their personality characteristics. Cited in the study of Dieringer et al. (2017) that mental health concerns pose challenges to career selection. Maina (2020) asserts that it can lead to frustration, especially if there are limitations on their desired courses or programs of study. Results showed that the majority of students considered themselves self-conscious, nervous, and shy. Kasper (2012) reported that shy individuals are more disadvantaged than their peers in various domains, such as social and academic functioning, which are two essential aspects of schooling. Individuals with profound shyness may display physiological manifestations such as blushing, sweating, and gastrointestinal distress, alongside behavioral indicators including social withdrawal and preoccupation with others' perceptions (Carducci, 1999). Research in India by D'Souza, Urs, and James (cited in Chishti et al., 2018) indicates that students exhibiting excessive shyness may experience adverse consequences, including poor academic performance. It has been found that students who are shy or nervous perform lower than their peers academically (Wood, 2006). According to Rudasill and Kaufman (2009), shy students find it more difficult to build positive relationships with their professors and fellow students. The study's findings by Chishti et al. (2018) supported other studies showing that academic achievement decreases with increasing shyness and improves with decreasing shyness.

### Dominant preference within the four dichotomies

Personality preferences vary widely from person to person. The four preference dichotomies indicate dominant preferences. Sixteen distinct personality types can be identified by integrating energy direction (E/I),

perceiving function (S/N), judgment function (T/F), and lifestyle preference (J/P): ENTP, ENTJ, ENFP, ENFJ, ESTP, ESTJ, ESFP, ESFJ, INTP, INTJ, INFP, INFJ, ISTP, ISTJ, ISFP, and ISFJ (Myers & MacCaully, 1990). An individual may exhibit a personality trait on a spectrum between two opposites or may exhibit two personality preferences based on dichotomies.

**Table 2. Frequencies and Percentages of Four Fundamental Dichotomies**

Four Dichotomies	Counts	% of Total
Introvert (I)	58	81.7%
Extrovert (E)	13	18.3%
Sensing (S)	48	67.6%
Intuition (N)	23	32.4%
Thinking (T)	49	69.0%
Feeling (F)	22	31.0%
Judging (J)	52	73.2%
Perceiving (P)	19	26.8%

Table 2 shows the four fundamental dichotomies along with their frequencies and percentages. The most dominant personality types among the four dichotomies were Introverted (n=58) and Judging (n=52). The results showed that the majority of students seeking to shift to another program aligned their energy direction preference to introverts. Often self-motivated, introverts require less outside stimulus and can easily immerse themselves in work they enjoy (Simkus, 2025). However, they might have trouble asking other people for help when they have difficult challenges. When it comes to problem-solving, introverts perform lower than extroverts in mathematical problem-solving (Nasution et al., 2025). In addition, students who drop out of college before they graduate have a strong propensity for introversion (Orcutt, 2019; Kin and Rameli, 2020). Furthermore, Shiksha and Nabin (2021) reported that academic success was significantly and positively correlated with extroverted characteristics in pharmacy course. The finding contradicts the study by Shi et al. (2007), which asserts that introverted students were more likely to complete their courses and had higher GPAs compared to extroverted students.

Furthermore, the results indicated that students who exhibited the Sensing Type were more likely to shift to a different program than those categorized as Intuitive. This result supports the research conducted at North Carolina State University, wherein 83% of undergraduate engineering students who displayed the intuitive type performed noticeably better academically than those categorized as the sensing type (Felder et al., 2013). The sensors in Godleski's research may have performed more poorly than the intuitors due to their limited capacity to solve problems quickly, since problem-solving speed is an important factor that determines test scores in the majority of engineering courses (cited in Felder, 2002). Sensors who seek sensations may also be more prone to procrastination, delaying tasks for the thrill of last-minute pressure (cited in Hu & Guo, 2024; Steel, 2007). In engineering subjects with significant amounts of abstract material, those with intuition performed noticeably better than sensors, while the contrary was observed in more practical subject matter (Felder, 2002). Additionally, Kin and Rameli (2020) found that undergraduate architecture students are more likely to have the intuitive attribute.

The findings showed that thinking preference was more common among undergraduate shiftees. Paredes and Arboleda's (2024) study revealed that underachieving students in the BS Electronic Engineering occasionally display thinking characteristics. They thrive on making inferences from reason and objective

criteria; however, situations that call for subjective evaluation or inadequate evidence can present challenges. On the other hand, Kin and Rameli (2020) reported that the domains of science and engineering are associated with the thinking (T) and judging (J) personality types. In the somewhat impersonal setting, thinking often did better than feeling. The results also show that students are more interested in judging lifestyle preferences than in perceiving. Felder (2002) found in the engineering field, students classified as judging performed better than those classified as perceiving. Judging exhibits higher performance compared to perceivers (P) when they have to carefully plan their time because of a demanding curriculum. However, they may have difficulty adapting to new situations or plans that do not go as planned because they prefer a structured environment.

**Personality preferences among undergraduate shiftees**

The ranking of the most and least common personalities is shown in Table 3. It shows frequencies and percentages of personality type indicators among shifting students in the Science and Technology cluster.

**Table 3. Frequencies and Percentages of Personality Type Indicator**

<b>Personality Type Indicator</b>	<b>Counts</b>	<b>% of Total</b>
ISTJ	29	40.80%
INTJ	7	9.90%
ISFJ	6	8.50%
ISTP	6	8.50%
ENFP	4	5.60%
INFP	4	5.60%
INFJ	3	4.20%
ESTJ	3	4.20%
ISFP	3	4.20%
ENTP	2	2.80%
ENTJ	2	2.80%
ESFJ	1	1.40%
ENFJ	1	1.40%
<b>Pair</b>	<b>Counts</b>	<b>% of Total</b>
IJ	45	63.4%
IS	44	62.0%
IT	42	59.2%
TJ	41	57.7%
SJ	39	54.9%
ST	38	53.5%
IF	16	22.5%
IN	14	19.7%
IP	13	18.3%
NF	12	16.9%
NF	12	16.9%
FP	11	15.5%

FJ	11	15.5%
NT	11	15.5%
SP	11	15.5%
SF	10	14.1%
NT	11	15.5%
EN	9	12.7%
TP	8	11.3%
ET	7	9.9%
EJ	7	9.9%
EF	6	8.5%
EP	6	8.5%
ES	4	5.6%

According to the data gathered, the most common personality type among shifting students in the Science and Technology cluster (Table 2) is Introvert-Sensing-Thinking-Judging ( $n = 29$ ). ISTJs comprise 13 females and 16 males. Several studies (Paredes & Arboleda, 2024; Fussel, 2017; Roseti, 1998) indicate that individuals with an ISTJ personality preference are more likely to pursue degrees in science and technology disciplines. However, the findings revealed that students with an ISTJ personality preference may shift to an alternative option and not complete their first-choice program. Moreover, the ESFJ and ENFJ types have only one representative each, making them the least common. The three personality types that were missing are ISTP, ESFP, and ESTP.

Contrary to the findings, many jobs in science and technology attract individuals with a preference for the ISTJ personality type. The MBTI (Myers & MacCaully, 1990) indicates that ISTJs thrive in information technology, library sciences, accountancy, technical writing, engineering, analytical roles, and dentistry. Moreover, Ke's (2024) study revealed a significantly stronger association between academic achievement and motivation among ISTJs. This is attributed to their high levels of responsibility, organization, logical reasoning, and meticulous attention to detail. The findings, however, suggest that their rigid approach, straightforwardness, and propensity to overlook emotions may hinder their performance in tasks demanding adaptability to new ideas or coordination.

According to the results, TJs comprise 57.7% of the sample in terms of personality preferences associated with a person's lifestyle, decision-making and information processing, followed by SJs (54.9%). On the other hand, 14.1% of the individuals had SF and 16.9% had NF. Additionally, the results indicated that students who stated a desire to change programs were more likely to have IJs (63.4%) and IS (62.0%) as their preferred functions. This means that they are more focused on internal sensory experiences and details, and prefer performing tasks in an organized manner.

### Introvert-Sensing-Thinking-Judging (ISTJ) working style

Felder (2002) asserts that introverts like work settings that let them think things through on their own. They generally prefer working on a single project for extended periods of time without interruptions. Sensors dislike training that is heavily reliant on abstractions, such as theories and mathematical models, and prefer learning experiences that are tangible and have clear expectations. Feedback is best understood by sensors when it is connected to specific examples; thus, it is important to convey the dynamic difficulties in tangible words. Furthermore, they dislike new problems unless they can be solved in an established

way. They may need help sorting irrelevant facts from relevant ones. Thinkers prefer tasks involving logical thought processes, particularly when it comes to concepts, numbers, or things that exist. They find it challenging to deal with other people's emotions and do not display emotion easily. Judging types prefer well-structured instruction with precisely specified tasks, goals, and milestones. They may find it quite difficult to adjust to changes, particularly when their prior approaches were not effective. They perform at their best when they are able to organize and stay committed to a plan.

In this regard, studying effectively requires more than just knowing how to study. Besides learning how to study, students need ongoing motivation, the ability to govern their learning, a strong sense of responsibility for their education, and a strong desire to learn (Aquino, 2011). For example, the ISTJ usually deals with problems in a traditional approach, values careful planning, takes in the most important information in a calm environment, and prefers to work alone when they need to focus deeply (Myers-Briggs Type Indicator®, 2025). Findings show that knowing how each personality type learns best can help students avoid career mismatches by helping them identify the types of learning activities and techniques they might like or consider engaging.

**Study Orientation**

Table 4 presents relevant data regarding the SSHA scales, including their mean scores, standard deviations, and verbal descriptions. The results show that the students have an adequate study orientation. This suggests they think they are somewhat good at managing their time, doing their schoolwork, and being in an environment where they can learn. Students had the most favorable scores on teacher approval, which was rated as very satisfactory. This shows that the students really appreciate their teachers. The study found that the mean score on study attitudes, which includes teacher approval, was higher than the mean score on study habits. They acknowledge the commendable attributes of their instructors in their pedagogical methods, classroom conduct, and standards for student learning. Results show that, despite the teacher approval rating being very satisfactory, it is not sufficient for students to pursue the program and improve their academic achievement. Also, the mean score for educational acceptance was 20.7, which is seen as satisfactory. This means that most students possess a moderately positive view of their educational goals and methods.

**Table 4. Mean Scores, and Standard Deviation on SSHA Scales**

SCALE	Mean Score	SD	Percentile Rank	Verbal Description
Delay Avoidance	13.9	6.52	40.5	Satisfactory
Work Methods	21.2	6.20	47.1	Satisfactory
Study Habits	34.8	10.4	44.4	Satisfactory
Teacher Approval	26.3	8.04	70.5	Very Satisfactory
Educational Acceptance	20.7	8.11	50.5	Satisfactory
Study Attitudes	47.2	14.1	63.8	Satisfactory
Study Orientation	81.5	20.4	55.4	Satisfactory

In addition, Table 4 shows that students scored higher on study attitudes compared to study habits, which consist of two scales: delay avoidance and work methods. It indicates that students'

perceptions of task management in terms of avoiding delays and employing effective study strategies were moderate. Results from satisfactory habits may demonstrate average academic performance. They can sometimes demonstrate inconsistent dispositions and actions related to learning. They may have a tendency to finish only what is necessary and handle things as they arise. Although the students are doing satisfactorily, there is still an opportunity for progress if they want to perform at above-average levels. The results indicate that students can improve their academic performance by practicing better task-management planning, refraining from procrastination, adopting a growth mindset, and having the confidence to communicate with peers or professors for help when needed. The academic performance of the students may have been influenced by their study habits and attitudes. However, the findings do not conclude that these are the main reasons for their desire to shift to another program.

**Relationship between MBTI personality dichotomies and SSHA Scale**

Table 5 shows the specific test results, along with the p-value (p) and the Mann-Whitney U statistic (statistic). The Mann-Whitney U test was used to investigate how test scores varied among students' personality types. Scores on study habits, study attitudes, and study orientation data were used to calculate mean scores. In the four dichotomies, the two groups from the opposing pairs were compared.

**Table 5. Mann-Whitney U tests of students' shiftees when grouped according the MBTI personality dichotomies**

SSHA Scale	MBTI personality dichotomies	N	Mean	Median	SD	Test statistics	p-value
Study Habits	Introversion	58	35.1	34.5	10.5	342	0.602
	Extroversion	13	33.8	32.0	10.4		
	Sensing	48	34.6	33.5	10.3	534	0.830
	Intuition	23	35.4	35.0	11.0		
	Thinking	49	36.2	36.0	10.4	408	0.103
	Feeling	22	31.9	32.0	10.1		
Judging	52	37.5	37.0	10.4	203	<.001*	
Perceiving	19	27.6	27.0	6.59			
Study Attitudes	Introversion	58	49.0	49.0	13.7	229	0.028*
	Extroversion	13	38.9	37.0	13.8		
	Sensing	48	47.1	48.0	11.1	512	0.623
	Intuition	23	47.2	44.0	19.3		
	Thinking	49	47.4	48.0	18.1	495	0.588
	Feeling	22	46.6	47.0	12.9		
Judging	52	49.8	50.0	13.8	284	0.006*	
Perceiving	19	39.9	43.0	12.66			
Study Orientation	Introversion	58	83.5	84.0	19.6	275	0.129
	Extroversion	13	72.5	67.0	22.2		
	Sensing	48	81.6	83.0	18.8	551	0.995
	Intuition	23	81.1	78.0	23.9		

	Thinking	49	83.5	86.0	19.6	426	0.162
	Feeling	22	76.9	74.5	21.9		
	Judging	52	86.5	90.5	19.3	216	<.001*
	Perceiving	19	67.5	67.0	16.91		

The results showed that across the four dichotomies, lifestyle preference groups (Judging/Perceiving) had a significant effect on students' study habits, study attitudes, and study orientation. The mean scores of the judging (J) and perceiving (P) groups appear to differ significantly, as seen in Table 5.

Findings showed that study habits scores were significantly lower in the perceiving preference group ( $Mdn=27, n=19$ ) compared to the judging preference group ( $Mdn=37, n=52$ ),  $U=203, p<.001$ . Similarly, the results indicated that study attitudes scores were significantly lower in the perceiving preference group ( $Mdn=43, n=19$ ) than in the judging preference group ( $Mdn=50, n=52$ ),  $U=284, p=0.006$ . Moreover, there is a significant difference between judging and perceiving with respect to study orientation. Hence, the results implied that study orientation scores were significantly lower in the perceiving preference group ( $Mdn=67, n=19$ ) than in the judging preference group ( $Mdn=90.5, n=52$ ),  $U=216, p<.001$ . This indicates that students who identified as judging rather than perceiving had better study orientation, which included study habits and study attitude. The result supports the findings of Felder (2002), which reported that judging frequently performed better than perceivers when they had to carefully plan their time when performing tasks. Furthermore, the study revealed that higher median scores in judging preference can be beneficial in course programs related to science and technology (Kin and Rameli, 2020; Shi et al., 2007); however, it can also lead to challenges such as rigidity and difficulty in ambiguity that may cause detrimental impact on overall study performance. Wang & Sheibani (2024) assert the importance of recognizing the relationship of personality and study habits that influence and guide individuals in their career choices. In addition, there is a significant effect of energy direction (introversion/extraversion) on study attitudes ( $p=0.028$ ). The finding indicates that study attitude scores were significantly lower in the extrovert preference group ( $Mdn=37, n=13$ ) compared to the introvert preference group ( $Mdn=49, n=58$ ),  $U=229, p=0.028$ . This means that introverted personality type had more positive study attitudes of their teachers' behavior and methods of instruction than extroverts. The findings of the study are then consistent with the claims of Crede et al. (2008) and Aquino (2011), which suggest that study attitudes and habits are partially influenced by students' personality characteristics.

The findings revealed that the other dichotomies were not rejected because the p-values varied from 0.103 to 0.995. The results showed no significant difference between the two opposing pairs from three dichotomies with regard to energy direction (Introversion/Extraversion), information gathering (Sensing/Intuition), and decision-making (Thinking/Feeling) on students' study habits and study orientation. It is also evident from Table 5 that information gathering (Sensing/Intuition) and decision-making (Thinking/Feeling) have no significant effect on students' study attitude.

### Conclusion and Recommendations

Findings show that the majority of the students have an ISTJ personality type. Nonetheless, the fact that there are more ISTJs than any other type does not imply that they are the personality types most likely to change their major. The findings reveal that having an ISTJ personality preference has its strengths and weaknesses. Although the study suggests this personality type, possibly indicated by some ISTJ functions struggling with studies or tasks, they can still succeed academically in science and technology. It is also

important to acknowledge that some research studies (Ke, 2024; Paredes & Arboleda, 2024; Myers, 1998) provide evidence relating the ISTJ personality type to academic success in these fields. On the other hand, the findings revealed that students who are interested in shifting to a different program have a satisfactory study orientation. The study indicates that simply achieving a satisfactory learning orientation rating may not be sufficient for continued progress in the demanding academic fields of science and technology. The study essentially emphasizes that learning in a very challenging academic environment requires a great deal of effort, discipline, consistency, and commitment to the tasks at hand.

Based on the study's findings, institutions can adopt specific interventions and proactive support systems to strengthen students' engagement and academic progress in their chosen program. The results suggest that educators can take their students' personality characteristics into account when developing course delivery strategies. Recognizing the differences in personality can provide valuable insights that can significantly improve teaching and learning processes, enhancing educational outcomes while providing a supportive learning environment. Moreover, the development of a mentorship program using the student-centered learning approach is one strategy that can be useful in taking into account the personality types and learning styles of the students. According to Mendezabal (2013) personality has an important role in shaping learning styles, which in turn influences academic performance. Studies of Uwimana et al. (2024) and Okoro et al. (2024) show that both students' overall well-being and academic performance benefit from the establishment of mentorship programs such as peer academic mentoring, where they can seek help when they are having difficulty in their subjects. Academic mentorship has a major impact on academics' productivity (Okoro et al., 2024). An academic mentor can help a student achieve their goals and improve their performance by providing guidance, support, and constructive criticism. A mentorship or peer support program can help shy and introverted students overcome the hurdles of a demanding academic environment, learn on their terms in a comfortable setting, and have productive conversations about their academic and career-related concerns.

This research can be used as a basis for counselors to better match students with careers by understanding their personality types. Based on their personality types, they can assist students in finding courses that are also in line with the kinds of jobs and environments they would find enjoyable. Students may discover value in the activities they are interested in and a greater appreciation for what they have learned as they study the course materials. They can also examine and assess the way in which students study while carrying out their academic responsibilities. They may have goals related to the outcomes they hope to get, but examining the system of study will emphasize the role that the process plays in achieving those goals. According to Clear (2018), while goals are important for establishing direction, systems function effectively for making progress. Considering that the expectations of academic responsibilities in college differ from those in high school, it is possible that their habits will affect how well they succeed academically. Additionally, although students may benefit from the judging (J) preference, handling changes and adjustments may present difficulties. In order to address the possible detrimental impact of this behavior on their overall study effectiveness in relation to their academic performance, students should also be encouraged to create flexible learning strategies.

The most common personality type in this study is ISTJ, although this does not necessarily suggest that students with this type are inclined to change their degree program in college. The limitations of the study include that the data was collected from only one university, and the number of students from the science and technology cluster was small. As a result, this may affect the generalizability of its findings. Increasing the number of undergraduate year levels evaluated in future research could strengthen the findings'

generalizability. It can help researchers fully understand how specific MBTI personality preferences influence educational achievement in the science and technology areas among students who intend to shift to another program. Moreover, further study is needed to attain a deeper understanding of how individual personalities and attitudes toward learning affect how they understand and interpret their educational experiences. They may experience similar situations, but they may have different perspectives that can affect their attitudes and behaviors, which could potentially influence their academic progress. On the other hand, it is also important to review students' coping strategies, such as how long they use devices, to determine if they are meeting their needs at appropriate times. The findings can be utilized to help students improve their time and task management efficiently and effectively. They can use such information to assess whether it is beneficial to their overall well-being and academic productivity or if a modification is needed.

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