

Motivation and attitude of BSEd-Science major students of Divine Word College of San Jose

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Abstract

This exploratory sequential research on students' motivational factors and attitudes towards 122 BSED-Science Major students at Divine Word College of San Jose found that the student-respondents are aged 18–20 years, mostly female, and from lower- and middle-income families. To analyze the qualitative data, Colaizzi's method was used, while descriptive and inferential statistics were used to treat the quantitative data. The five motivational factors derived from the study were institutional factors, holistic factors, social factors, practical accessibility, and community engagement. The results showed that students were highly interested (4.27). Similarly, the attitude toward the BSED Science program was also favorable (4.29) in the cognitive (4.33), affective (4.36), and behavioral (4.19) dimensions. Testing the hypotheses showed that institutional factors had a negative impact on motivation, while social support and community accessibility significantly enhanced motivation. Holistic factors did not significantly influence the variables. Also, motivation plays a key role in the cognitive, affective, and behavioral orientations of students toward science education. These findings underscore the role of institutional support and external factors in reinforcing student motivation and engagement. Thus, helping in the preparation of action plans. The study notes that barriers to motivation can be addressed by enhancing institutional policies, resources, and support systems. Additionally, the development of interactive, student-centered learning experiences was identified as a significant contributor to increased involvement in science studies. Social engagement and the implementation of environmental accessibility improvements were also mentioned as key to keeping students academically enrolled. Addressing those would encourage institutions to create a more encouraging and supportive environment for future science educators.

Keywords: motivational factors, attitude, social support, institutional support, science program

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1. Introduction

Teaching is the noblest of professions because it creates all professions. It is divided into two specific types: basic education (encompassing kindergarten to senior high school) and tertiary education. Tertiary Education Institutions, like Divine Word College of San Jose, offer programs intended to teach basic education, such as BSED and BEED. A Bachelor of Secondary Education (BSEd) is a four-year program that offers courses in English, Filipino, Mathematics, Science, Social Sciences, Technology and Livelihood Education (TLE), *Edukasyon sa Pagpapakatao* (ESP), and Music, Arts, Physical Education, and Health (MAPEH). Specifically, the Commission on Higher Education (CHED) Memorandum Order (CMO) 30, series of 2004, mandates that it seek to develop graduates who have sound values and respect for others, alongside a commitment to serving their community. Students would learn to think critically and solve problems while considering the ethical and social implications of their choices. The CMO also made the case for lifelong learning, enabling graduates to adapt to a rapidly changing and globalized world. Finally, it contributed to improving students' knowledge, skills, and competencies up to national and international standards, as well as their competitiveness in specific fields of work.

By extension, the Commission on Higher Education (CHED) Memorandum Order (CMO) 75, series of 2017, specifically mandates that a competent BSED student must articulate the rootedness of education in philosophical, socio-cultural, historical, psychological, and political contexts, demonstrating a deep understanding of the discipline. Mastery of the subject matter enables them to facilitate learning effectively using diverse teaching methodologies and delivery modes suited to various learners and their environments. Furthermore, they must develop innovative curricula, instructional plans, and teaching approaches that cater to the needs of diverse learners while integrating ICT to enhance educational practices. Critical thinking skills are essential in planning, monitoring, assessing, and reporting learning outcomes to ensure quality education. Upholding professional and ethical teaching standards is crucial in addressing local, national, and global realities. Additionally, BSED students must embrace lifelong learning through experiential and field-based opportunities to foster personal and professional growth.

With the heavy imposition by the commission through its CMOs, institutions are left with a lifelong mission: to motivate their learners and promote a positive attitude toward the BSED program. Motivation is a complex and multifaceted concept that drives individuals to pursue certain goals and engage in specific behaviors (Bower, 2019). It can be categorized into various types, each with distinct influences on decision-making (Fuente, 2019). Intrinsic motivation stems from internal factors, such as personal interest, passion, or the satisfaction of mastering a skill (Zheng et al., 2023). Extrinsic motivation, on the other hand, arises from external rewards or pressures, including financial incentives, recognition, or societal expectations (Kalogiannakis et al., 2020). In addition, social (Filgona et al., 2020), philanthropic (Dodgson et al., 2020), professional (Diem Vo et al., 2022), and personal motivations (Hewitt et al., 2018) may all influence an individual's actions and choices, particularly in educational settings. Attitude can be defined in many ways. It is often linked to behavior, whether positive or harmful. Attitude is a psychological construct that refers to a person's feelings, beliefs, and predispositions toward a particular object, person, concept, or event (Nuangchalerm et al., 2022). It involves a combination of emotions, thoughts, and behaviors that influence how someone reacts or responds to certain situations (Aruta et al., 2019). An affirmation stated that attitude can be positive, negative, or neutral and can be shaped by personal experiences, cultural influences, education, and social interactions (Adúriz-Bravo & Pujalte, 2020).

While much research has been conducted on the motivational factors and attitudes influencing students in science education across various universities and regions (Gorospe, 2024), particularly in more urbanized or

industrialized educational settings, there is a lack of focused studies on smaller institutions in rural or semi-urban areas like Divine Word College of San Jose in Occidental Mindoro. This is the spatial research gap. Most existing literature centers around students from more prominent universities or those in metropolitan areas, where educational resources, science facilities, and exposure to STEM career opportunities are more abundant. Having been able to learn from the institution since Early Childhood Education (ECE) up to Master's and to have the opportunity to serve Divine Word College of San Jose (DWCSJ) as a part-time instructor, this led the researcher to pay homage to his alma mater of 23 years and to aim at improving the BSED-Major in Science Program of DWCSJ. This study aimed to explore and examine the motivational factors and attitudes of BSED science students at Divine Word College of San Jose. Specifically, this research aimed to identify the key motivators that drive these students to pursue a degree in science education and to understand their attitudes toward the academic challenges and opportunities they face.

Statement of the Problem - This study explored the underlying factors that motivate BSED Science students to enroll in DWCSJ, assessed their attitude toward their chosen field, and analyzed the relationship between these motivations and their demographic profile. The study aimed to provide insights to improve the BSED Science program at DWCSJ, fostering well-prepared and motivated science educators. Specifically, this study aimed to answer the following question: (1) What motivates the student-respondents to choose Divine Word College of San Jose for their tertiary education and to pursue a BSED in Science? (2) What is the demographic profile of the student respondents in terms of age, sex, and socioeconomic status? (3) What is the extent of assessment of BSED Science student-respondents on their motivation for choosing Divine Word College of San Jose as their tertiary education school in terms of institutional factors, holistic factors, social factors, practical accessibility, and community engagement? (4) What is the extent of the attitude of BSED science student-respondents toward taking it up at DWCSJ in terms of cognitive dimension, affective dimension, and behavioral dimension? (5) Is there a significant relationship between the demographic profile of the student-respondents and the extent of motivation for choosing Divine Word College of San Jose as their tertiary school? (6) Is there a significant relationship between the extent of motivation of student-respondents and their attitude in choosing Divine Word College of San Jose as their tertiary school in taking up BSED Science? (7) In light of the findings of this study, what action plan will be proposed to improve the BSED Major in Science Program course offered at Divine Word College of San Jose?

Significance of the Study - This study explored the relationship between motivation and attitude among BSED Science students at Divine Word College of San Jose (DWCSJ). The findings are particularly significant to several stakeholders. For BSED Science students, the study provides insights into their motivations and attitudes, helping them develop strategies to stay engaged and persist in their studies. Faculty and academic advisors can use the results to better support students, tailor interventions, and address any negative attitudes that may impact academic success. School administrators can apply the findings to improve policies and programs that enhance student engagement and retention in science education. Parents and guardians can gain a deeper understanding of their children's motivations and attitudes, enabling them to provide more effective support at home. Curriculum developers can use the insights to refine science education programs, ensuring they align with students' motivational drivers and learning needs. Policymakers can utilize the study's findings to shape educational initiatives that promote science education and address motivational challenges. Future researchers can build on this study to explore similar topics in different settings. Divine Word Colleges can benefit by improving teaching approaches, student support services, and program offerings to enhance student success. The Department of Science and Technology - MIMAROPA (DOST-MIMAROPA) can use the findings to encourage more students to pursue science education through scholarship programs and research funding. Lastly, the Commission on Higher Education (CHED) MIMAROPA can assess and improve teacher education programs, ensuring they effectively support aspiring science educators.

Scope and Delimitation of the Study - The study focused on Bachelor of Secondary Education (BSEd) students majoring in science enrolled at Divine Word College of San Jose. It investigated the motivational factors that drove these students to pursue and persist in their science education, as well as their attitude toward the

program. The research was limited to the student population at Divine Word College in San Jose and employed both qualitative and quantitative methods, including surveys and interviews, to collect data from a selected group of students. The study specifically examined the motivation of student-respondents in choosing Divine Word College of San Jose for their tertiary education in BSED with a major in General Science, their attitude toward the program, and their demographic profiles, which were identified as the intervening, dependent, and independent variables. The statistics of this study are limited to determining the relationships between demographics, motivation, and attitude. Thus, the study excluded the determination of a significant relationship between demographics and their attitude toward taking the program.

2. Methodology

Research Design - This study used an exploratory sequential design to examine the motivational factors and attitudes of BSED Science students at Divine Word College of San Jose. The mixed-methods approach involves two main phases: a qualitative phase, where in-depth interviews explore students' motivations, followed by a quantitative phase, where survey data validates and generalizes the qualitative findings. The qualitative insights guide the development of the survey instrument. The integration of both phases provides a comprehensive understanding of students' motivations and attitudes, making the findings both meaningful and generalizable.

Respondents of the Study - In the qualitative phase of the study, 15 participants were selected using purposive and snowball sampling to ensure data saturation, meaning no new themes or codes emerged from the data. This approach allowed for a diverse sample, ensuring that participants with relevant characteristics were included, which strengthened the depth of the findings (Perez et al., 2019). It also helped reach hard-to-access individuals while maintaining privacy. Semi-structured interviews were conducted both in person and via teleconference, using an interview guide to explore students' motivations. Participants were chosen based on criteria such as age, sex, and socioeconomic status to align with the study's focus on motivational factors and attitudes. For the quantitative phase, complete enumeration was used, including all 122 BSED Science majors from Divine Word College of San Jose, except for the 23 students from the Semirara campus and the 15 informants from the qualitative phase.

Research Instrument - For the qualitative phase, an open-ended interview was conducted with 15 respondents who were purposively selected to explore their motivations. This method allows participants to share personal experiences, thoughts, and feelings about their academic persistence in the program. The interview included questions focusing on personal goals, external support, academic challenges, and overall perceptions of the program, uncovering rich insights into their motivational factors. For the quantitative phase, a researcher-made questionnaire with 5-point Likert scale questions was used to collect the needed data. One instrument assesses students' attitudes, while the other measures intrinsic and extrinsic motivations, providing valuable data for analyzing trends and patterns. The validity of the instrument is crucial for ensuring accurate and meaningful results. The instrument was validated by five experts from Divine Word College of San Jose. It is the measure by which the instrument accurately depicts the motivations and attitudes it seeks to measure. Expert validity in a linear mixed-methods design would thus consist of having the faculty members at Divine Word College and others use the instrument to determine if the items adequately represented the relevant domains of these constructs.

In addition, reliability testing was conducted at Occidental Mindoro State College, College of Teacher Education, under the supervision of Dean Joanne Dome Gorospe, Ed.D., and BSED Program Head Mary Ann Austria Gonda-Felipe, Ed. D. A small sample of 30 BSED-Major Science students was used to administer the pilot testing of the questionnaire (Billingham et al., 2013). Ensuring validity and reliability helped gather meaningful data on the motivational factors and attitudes of BSED-Science students, informing educational strategies at Divine Word College of San Jose. After administering the self-made instrument in the form of a questionnaire consisting of 62 item indicators, it underwent a reliability test. The split-half reliability technique, using the Spearman-Brown formula, was applied since the questionnaire was administered only once to the

student respondents. Reliability coefficients based on equal length generated the following results:

Table 2

Reliability Analysis

Indicators	Items	Reliability Coefficients*	Interpretation
Motivation			
Institutional Factors	6	0.728	High Reliability
Holistic Factors	6	0.634	Moderate Reliability
Social Factors	6	0.837	High Reliability
Practical Accessibility	6	0.605	Moderate Reliability
Community Engagement	6	0.817	High Reliability
Attitude			
Cognitive Dimension	8	0.887	High Reliability
Affective Dimension	8	0.750	High Reliability
Behavioral Dimension	8	0.837	High Reliability

*Based on coefficients of equal length

The results above yielded a generally high level of reliability for motivation factors and attitude dimensions, as reflected in coefficients ranging from 0.605 to 0.887. The results attested to the instrument's acceptability and were therefore ready for administration to the final group of student respondents.

Data Gathering Procedure - Before everything else, the researcher secured letters of permission to administer the reliability test and to conduct the study, which were signed and approved by the Dean of CTE-OMSC and the Dean of College-DWCSJ, respectively. After doing so, the data gathered was both qualitatively and quantitatively evaluated. Data analysis involved transcribing and coding qualitative responses to identify themes using Colaizzi's method of qualitative data analysis. The physical gathering of data started after the experts validated it; the procedure took place from November 2024 to January 2025. After the data were tabulated for quantitative analysis, the researcher sent a letter to the statistician requesting assistance with data analytics. Quantitative data were analyzed using WarpPLS version 7, with both descriptive and inferential statistics applied. A pilot test was conducted to ensure clarity and reliability, with necessary adjustments made. Surveys were distributed electronically and in paper form, with clear instructions.

Statistical Treatment of the Data - The study employed both descriptive and inferential statistical methods to analyze the quantitative data effectively. For qualitative data, Colaizzi's method was used, following its structured seven-step approach: familiarization, identifying significant statements, formulating meanings, clustering themes, developing an exhaustive description, creating the fundamental structure, and member checking (Audulv et al., 2022). Descriptive statistics summarized respondents' demographic profiles and motivational factors. Inferential statistics, such as t-tests, identified differences in attitude across year levels, while correlation analysis using WarpPLS v. seven assessed relationships between motivation and attitude. Structural Equation Modeling (SEM) determined the extent to which motivational factors influenced student attitude.

Ethical Considerations - The study prioritized ethical considerations by obtaining informed consent, ensuring confidentiality, and providing emotional support to participants. It also maintained honesty and integrity in data collection, followed APA guidelines for citing research, and respected the well-being of participants throughout.

3. Results and Discussions

Figure 1 illustrates the factors influencing the motivation of BSED science major students. These are categorized into holistic factors, institutional factors, social factors, practical accessibility, and community engagement. Holistic factors such as achievements, course adjustments, psycho-emotional health, and academic

path choices influence students' motivation to persist in their studies (Amir et al., 2021; Khan et al., 2020; Stadtfeld et al., 2018). Institutional factors, such as academic climate, program services, and institutional support, also affect student motivation (Hartelt & Martens, 2024; Horrocks & Hall, 2024; Napanoy et al., 2021; Santos & Celis, 2020; Griffith et al., 2025). Social factors, including family, peers, and society, shape students' attitudes and commitment to their studies. Practical accessibility and community support also influence students' choices, considering transportation, social, and academic support (Fatima et al., 2020; Badmus & Jita, 2023; CodeMint, 2019). Community engagement further boosts motivation and academic investment.

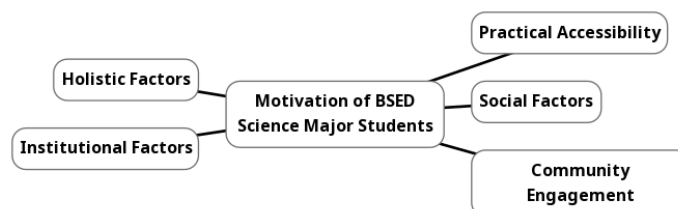


Figure 1. Final Theme for Motivation of BSED Science Major Students of DWCSJ.

Table 2

Respondents' Profile Distribution According to Age, Sex, and Socioeconomic Status (n=122)

Age	Frequency	Percent
18-20	80	65.6
21-23	32	26.2
24-26	9	7.4
27 and above	1	0.8
Sex	Frequency	Percent
Male	32	26.2
Female	90	73.8
Socioeconomic status	Frequency	Percent
Below P10,000	33	27.0
10,000 -19,999	33	27.0
P20,000 - P29,999	25	20.5
P30,000 - P39,999	22	18.0
P40,000 - P49,999	6	4.9
P50,000 and above	3	2.5
TOTAL	122	100

Table 2 shows the demographic profile of the student respondents, with the majority (65.6%) being 18–20. It also indicates that most respondents are in their late teens or early adulthood, likely aligning with typical college-age students. The age distribution suggests that most respondents are within the typical college-age range, indicating that the study findings are most relevant to young adults in early higher education, as supported by the Expectancy-Value Theory (EVT). The Self-Perception Theory also suggests that younger students are often motivated by intrinsic interest and self-belief, while older students tend to focus more on the usefulness and importance of their studies (Zhu & Chen, 2013; Yli-Piipari & Kokkonen, 2014; Guo, 2015; Abraham & Barker, 2015). 32 male student respondents made up 26.2% of the actual population, and 90 female student respondents made up 73.8% of the actual population. Thus, giving a total population of 122 via complete enumeration. An indication that, in the setting of DWCSJ, the BSED Science Major is female-dominated. While studies show no major difference in motivation between male and female students, societal expectations shape their educational choices (Fischer et al., 2013; Vleuten et al., 2016). The low male enrollment in education programs may be due to factors such as struggles in language arts, a lower status perception of teaching, and systemic biases. However, statistically, targeted support has increased male participation, especially among minority groups. The higher

number of female students reflects global trends showing the benefits of women's education, including economic opportunities and empowerment (Sholihah, 2023). Women pursue education to break free from traditional roles and improve their social status (Potokri, 2014), and as a final statement, Butler (2014) stated women are "less likely to drop out of school," meaning they persist in their education more than men do, which was supported by Sholihah (2023). Most respondents (54%) have a socioeconomic status below PhP20,000. The data suggest that the majority of respondents come from low- to middle-income families. Higher socioeconomic status enhances student motivation by providing better educational materials (Shey & Otto, 2020; Abah et al., 2022).

Table 3

Summary of the Composite Mean Extent of BSED-Science Students' Motivation

Indicators	Composite Mean	Verbal Description	Rank
1. Institutional Factor	4.33	High Extent of Motivation	1
Holistic Factor	4.32	High Extent of Motivation	2
Social Factor	4.28	High Extent of Motivation	3
Practical Accessibility	4.14	High Extent of Motivation	5
Community Engagement	4.27	High Extent of Motivation	4
Overall Mean	4.27	High Extent of Motivation	

Scale: 4.50-5.00—Very High; 3.50-4.49-High; 2.50-3.49—Moderate; 1.50-2.49—Low; 1.00-1.49—Very Low

Table 3 summarizes the mean extent of BSED-Science students' motivation. The overall mean of 4.27 indicates that the student respondents are highly motivated to pursue and persist in the BSED-Major in Science Program. Among the five indicators, institutional factors ranked first with a mean of 4.34, indicating a high extent. This indicates that the reputation of DWCSJ motivated the student-respondents to pursue a BSED Science degree, as it aligns with their personal and academic goals (Sá, 2023); the administration and faculty actively support students (Monderna & Voinarovska, 2019), creating a strong learning environment; and the availability of the program, along with the institution's resources and faculty expertise, further inspired them to excel and stay committed to their educational goals (Mendieta, 2023). Ranked 2nd among the five indicators is the holistic factor, with a composite mean of 4.32, indicating a high extent. This indicates that the motivation to succeed in the BSED Science Program is driven by self-assessment, academic excellence, career alignment, supportive relationships, resilience in overcoming challenges, and encouragement from parents, peers, and mentors. In addition to the supporting studies mentioned, Schulze and Heerden's (2015) claim that teachers play a significant role in fostering motivation was proven true by this item's result. In addition, it is essential to face challenges for growth and success. They highlight the importance of adapting with support while stating that coping strategies help students stay focused. Further stress the role of support, and emphasize the need for adaptability in science. Frisby et al. (2021) demonstrate how early setbacks build resilience. These studies suggest that overcoming obstacles strengthens determination, motivating students to seek support and succeed in their BSED Science degree.

Social factors have a composite mean of 4.28, a high extent, and are ranked third. This indicates that parental support, inspiration from family members in science and education, academic role models, encouragement from peers, recommendations from alumni, and the observed success of loved ones in related fields all reinforce a student's motivation to pursue a BSED Science degree at DWCSJ. This is a clear indication that encouragement and support from parents in pursuing the program and, although less so, having members involved in science education truly motivated the student-respondents (Tano & Tano, 2023). Community Engagement, having a composite mean of 4.27 with a verbal interpretation of "high extent," ranked 4th, meaning that the BSED Science Program at Divine Word College of San Jose fosters a strong sense of community, academic and emotional support, and personal growth among its students, motivating them to engage in community service and pursue careers in science education. This indicates that a sense of community motivates the student respondents to persist in their BSED major in science endeavor (Vance-Chalcrafft & Jelks, 2022;

Murphy & Kelp, 2023). The lowest mean among the five indicators is under the practical accessibility, having a composite mean of 4.14 with a verbal interpretation of a “high extent,” which means that the motivation of BSED Science students at Divine Word College of San Jose is positively influenced by the institution's convenient location, accessible facilities, financial support options, alternative career paths, program practicality, and strong support network of peers and mentors. This suggests that the strong support network of peers and mentors at Divine Word College of San Jose encouraged them to stay engaged and motivated in their BSED-Science studies and that there is a need to reduce students' last-minute decision-making (Garlieska et al., 2023).

Table 4

Summary of the Composite Mean Extent of Attitude Toward Taking Up BSED-Science in DWCSJ

Indicators	Composite Mean	Verbal Description	Rank
Cognitive Dimension	4.33	High Extent	2
Affective Dimension	4.36	High Extent	1
Behavioral Dimension	4.19	High Extent	3
Overall Mean	4.29	High Extent	

Legend: 4.50-5.00 – Very High; 3.50-4.49 – High; 2.50-3.49 – Moderate; 1.50-2.49 – Low; 1.00-1.49 – Very Low

Table 4 shows that students in the BSED-Science Program at DWCSJ have a high extent of positive attitude toward their course, as reflected in all three dimensions: cognitive, affective, and behavioral. With an overall mean of 4.29, a high extent implies that student respondents value science education, have a sense of affection for it, and have engaged in activities that can improve learning. Among the three indicators, the affective dimension ranked 1st, with a composite mean of 4.36, a high extent. This implies that student respondents show enthusiasm and passion for science, which motivates them to stay committed to their studies. Science courses play a significant role in developing critical thinking and curiosity and also help motivate students to educate others (Hamzah et al., 2015). The combination of these factors demonstrates that students not only strive to excel in science education but also actively seek ways to contribute to its improvement.

Moreover, the cognitive dimension, with a composite mean of 4.33, had a high extent and was ranked second. This implies that student respondents strongly understand the importance of science education and its relevance to their future careers. Additionally, career mentoring programs, such as COMPASS, enhance professional development by guiding students toward STEM-related careers. Through structured professional mentoring and hands-on experiences, the program positions students to inspire future generations and contribute to scientific advancements (Hayford et al., 2014). The behavioral dimension, with a composite mean of 4.19, is the lowest mean among the three indicators. This implies that student respondents actively participate in academic and extracurricular activities related to science education, such as laboratory work and science clubs. This underscores the significant behavioral engagement of BSED Science students at Divine Word College of San Jose. Research suggests that active participation in academic and extracurricular activities enhances scientific attitude, critical thinking, and self-efficacy, all essential for future science educators (Al-Ghanim et al., 2014; Joshi, 2023). Furthermore, linking classroom learning with co-curricular activities provides students with a well-rounded educational experience, equipping them with scientific expertise and practical teaching skills (Benek & Akçay, 2023).

Table 5 shows the path coefficients and p-values for hypothesis testing. Among the components of motivation, holistic factors show no connection with the students' profiles ($\beta = 0.109$, $p = 0.109$). Profile variables have a low degree of influence on institutional factors ($\beta = -0.154$), social factors ($\beta = 0.188$), practical accessibility ($\beta = 0.219$), and community engagement ($\beta = 0.167$). It can be noted that profile variables show an inverse connection with institutional factors, as indicated by the negative beta coefficient. This implies that, considering age, the younger group expects a higher level of motivation from their parents, mentors, and peers. Moreover, students from lower-income brackets need more guidance and support from their group.

Table 5*Path coefficients, p-values for Hypothesis Testing*

Path	Beta Coefficients	p-values*	Interpretation
Ho1: Profile → Motivation			
PROFILE→INST	-0.154	0.040	Significant
PROFILE→ HOLI	0.109	0.109	Not Significant
PROFILE→ SOCIAL	0.188	0.016	Significant
PROFILE→ ACCESS	0.219	0.006	Significant
PROFILE→ COMM	0.167	0.028	Significant
Ho2: Motivation → Attitude			
INST→ COGNI	-0.199	0.011	Significant
INST→ AFFECT	-0.140	0.056	Not Significant
INST→ BEHAV	-0.234	0.004	Significant
HOLI→ COGNI	0.238	0.003	Significant
HOLI→ AFFECT	0.235	0.003	Significant
HOLI→ BEHAV	0.317	<0.001	Highly Significant
SOCIAL→ COGNI	0.140	0.056	Not Significant
SOCIAL→ AFFECT	0.286	<0.001	Highly Significant
SOCIAL→ BEHAV	-0.010	0.454	Not Significant
ACCESS→ COGNI	0.102	0.125	Not Significant
ACCESS→ AFFECT	0.132	0.068	Not Significant
ACCESS→ BEHAV	-0.004	0.480	Not Significant
COMM→ COGNI	0.213	0.007	Significant
COMM→ AFFECT	0.199	0.011	Significant
COMM→ BEHAV	0.224	0.005	Significant

*Significant at $p < 0.05$

The findings support the rejection of most sub-variables in Hypothesis 1, except for holistic factors, as there is no significant relationship between the student respondents' demographic profile and holistic factors. However, a significant relationship exists between the student-respondents' demographic profile and institutional factors, social factors, practical accessibility, and community engagement. Institutional factors, such as classroom and laboratory availability, play a crucial role in academic performance, though their effects depend on socioeconomic conditions and institutional quality (Kisiang'ani et al., 2024; Vargas-Hernández et al., 2024). While a positive classroom environment contributes to student success, individual characteristics and socioeconomic backgrounds exert a stronger influence (Khan et al., 2024). Similarly, public education financing improves educational outcomes only when paired with institutional quality (Musah et al., 2024). Social factors also shape students' experiences, with socioeconomic status, gender, and cultural identity influencing academic attitude (Grootenboer & Marshman, 2016). Support from friends and family enhances engagement (Martínez et al., 2024), while students' perceptions of teachers and their satisfaction with the subject impact performance. Community engagement fosters social-emotional development, which is critical for academic persistence (Nyutu et al., 2024).

Moreover, practical accessibility significantly impacts students' motivation to pursue science education, as factors such as financial support, scholarships, and location convenience influence enrollment decisions (Borup et al., 2020). Access to resources and supportive learning environments directly affects academic motivation and self-efficacy, which are crucial for persistence in STEM fields (Murphy & Kelp, 2023). Additionally, community-based learning strengthens emotional and social skills essential for academic success. The Academic Communities of Engagement framework highlights how institutional and community support enhances engagement across affective, behavioral, and cognitive domains, improving academic outcomes (Borup et al.,

2020). While holistic factors may not correlate with demographic profiles, institutional factors, social factors, practical accessibility, and community engagement significantly influence students' motivation and persistence in the BSED Science Program. These findings underscore the need for targeted interventions to address systemic challenges and enhance educational opportunities for aspiring science educators.

For the second hypothesis testing, except for practical accessibility, the factors under motivation generally showed a low but significant connection with science students' attitudes, as evidenced by the beta coefficients ranging from 0.199 to 0.317. Regarding the computed p-values, practical accessibility did not relate to the cognitive dimension ($p = 0.125$), affective dimension ($p = 0.068$), or behavioral dimension ($p = 0.480$). It should be noted that the entry of p-values in the emerging model should be set to a value lower than 0.05. Institutional factors failed to influence the affective dimension. Social factors showed no significant connection with the cognitive dimension ($p = 0.056$) or the behavioral dimension ($p = 0.454$). It is worth noting that holistic factors ($p < 0.001$ and 0.003), along with community engagement ($p < 0.005$ – 0.011), successfully connected with all dimensions of students' attitudes. These results justify rejecting most sub-variables in Hypothesis 2, except for six, namely the proven insignificant relationships between institutional factors and the affective dimension of attitude, social factors and the cognitive and behavioral dimensions of attitude, and practical accessibility and the three dimensions of attitude (Gati et al., 2021). Contrary to this, the table also shows a relationship between institutional factors and the cognitive and behavioral dimensions of attitude, as well as holistic factors and the cognitive, affective, and behavioral dimensions of attitude. Social factors have a highly significant relationship with the affective dimension of attitude and a significant relationship between community engagement and cognitive, affective, and behavioral dimensions of attitude (Zhang et al., 2024; Sabanal et al., 2023; Taghap & Addani, 2024; Nyutu et al., 2024; and Kisiang'ani et al., 2024).

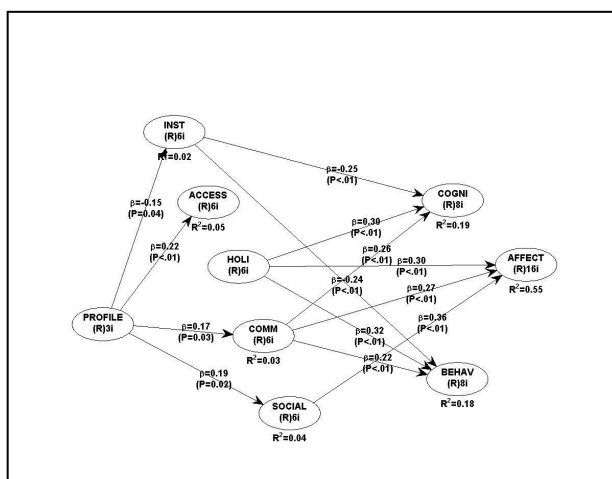


Figure 2. The Emerging Model for the Relationship Among Students' Profile, Motivation, and Attitude

After some independent variables were found to have no significant connection with the dependent variable, a new model emerged and is shown in Figure 2. Based on the emerging model presented, the profile variable is found to have a direct significant link with the extent of motivation, except for holistic factors. Holistic factors and community engagement under motivation showed three direct and significant links to each of the cognitive, affective, and behavioral dimensions, with the dependent variable being attitude. Social factors significantly influenced the affective domain, while institutional factors made significant contributions to the cognitive and behavioral dimensions. However, the three dimensions under attitude show no direct link with practical accessibility. Coefficients of determination yielded 19% ($R^2 = 0.19$) for cognitive, while the affective dimension is most affected by the factors of motivation, and the behavioral dimension is least affected. The significance of the relationship between the extent of motivation and level of attitude is substantiated by the p-values less than 0.01. Since the hypothesis suggests a relationship between all independent variables and attitude, and referencing the researcher, the researcher rejected the null hypothesis for variables that show significant relationships but retained it for those with weak or insignificant effects.

Table 6 shows an effective action plan targeting the cognitive, affective, and behavioral dimensions of attitude in science education, which aligns with contemporary research emphasizing interactive and emotionally engaging learning environments. Cognitive strategies, such as science workshops and discussions, enhance knowledge retention through active engagement and predictive cognitive processing (Kim & Urminsky, 2024). Affective approaches, including mentorship and motivational talks, foster emotional and social intelligence, which are crucial for long-term student engagement in STEM fields (Quinn et al., 2024). Behavioral reinforcement, such as science fairs and peer tutoring, encourages practical application and participation, reinforcing positive attitudes toward science through structured interventions (Kung et al., 2024). These insights underscore the importance of multi-faceted educational strategies in cultivating scientific curiosity and commitment

Table 6

Action Plan for Cognitive, Affective, and Behavioral Dimensions of Attitude

Goal	Objectives	Tasks	Resources Needed	Timeline	Responsible Parties	Performance Indicators	Evaluation
Cognitive (Improve understanding of science concepts)	Enhance knowledge through interactive learning.	Assign group discussions. Use YouTube for classroom activities. Science Club Meetings, Science Workshops and Seminars, Science Quiz Competitions, Debates and Discussions, Case Studies	Learning materials, guest speakers	Workshops: 1 month Discussions: Monthly	Science faculty, guest speakers	Students engage more in discussions and understand concepts better	Student feedback, assessments
Affective (Foster a positive attitude toward science)	Strengthen students' emotional connection to science.	- Organize field trips. - Host motivational talks. - Implement a mentorship program. Film Viewing	Field trip funds, speakers, mentors. Science Exhibitions, Science Outreach Programs, Role-Playing	Field trips: Every 3 months Talks: Every semester Mentorship: Ongoing	Science faculty, student council, mentors	Students feel more motivated and inspired to pursue science	Surveys, reflections
Behavioral (Encourage science-based actions)	Promote active participation in science activities.	- Hold science fairs. - Provide volunteer opportunities. - Offer peer tutoring. Explore local geology/ecosystems. Experiments, Skills Demo	Event funds, science materials.	Fairs: Annually Volunteering: Ongoing Tutoring: Monthly	Student council, science faculty, senior students	Increased student participation in science activities	Observations, reports.

4. Conclusions

Based on the significant findings, the researcher concludes that the main factors influencing motivation among BSED Science students were institutional factors, holistic factors, social factors, practical accessibility, and community engagement. Demographic Profile: Most students were within the college age range. The

program had more female students than male students. The majority of student respondents came from low- to middle-income families. Overall, students had a high level of motivation. Institutional factors contributed to a high extent of motivation. Holistic factors also played a significant role. Social factors strongly influence motivation. Practical accessibility was a key motivator. Community engagement had a notable impact on motivation. Attitude Toward the BSED Science Program. The data revealed that the student respondents showed a high level of positive attitude toward science education. Their cognitive attitude toward the program was positive. Their effective attitude was highly positive. Their behavioral attitude showed strong engagement in science-related activities. The study found that institutional factors negatively impacted motivation, while social support, practical accessibility, and community engagement significantly enhanced motivation. Holistic factors had no significant effect. Additionally, demographic factors were linked to students' motivation levels. The analysis confirmed a connection between motivation and attitude, showing that different motivational factors influenced students' cognitive, affective, and behavioral attitudes toward science education. With varying extents of motivation and attitude, the action plans proved essential to the improvement of the BSED-Major in Science Program.

Recommendations - Given the gravity of the findings and conclusions, the researcher humbly suggests that to strengthen student motivation, the BSED Science program may continue to enhance institutional, holistic, social, practical, and community engagement factors. Initiatives like mentorship programs, outreach activities, and accessible learning resources may be expanded. For demographic-based support, the institution or school may do the following: design learning activities suited to young adult learners, focusing on interactive and practical applications; promote gender-inclusive programs and encourage male participation in science-related activities; and offer more financial aid, scholarships, and support programs to help students from lower-income backgrounds. Since students already exhibit high motivation, the institution may maintain and further develop programs that support their enthusiasm for science education. Institutional support may be improved through better facilities, resources, and faculty guidance. Holistic development programs, such as wellness and leadership training, may be integrated by the school administrators and school heads. Social interactions and peer support systems may be encouraged through study groups and networking events. Accessibility may be prioritized by offering financial aid and flexible learning options. Community engagement of the school may be promoted through more science-related outreach and volunteer opportunities.

To enhance a positive attitude toward science education, teachers, with the support of their school administrators and school heads, may do the following: more engaging and interactive learning activities can be implemented to maintain high cognitive engagement. Workshops and seminars may be conducted to reinforce students' emotional connection to science. Hands-on projects and competitions may be encouraged to strengthen students' behavioral commitment to science. The institution may continuously assess and refine its teaching methods to maintain students' interest and participation in science education. The institution may improve curriculum design, faculty mentorship, and facilities to reduce the negative impact of institutional factors on motivation. Social support, accessibility, and community engagement may be further strengthened. Future research may explore why holistic factors had little effect. Since motivation influences students' attitudes, the school can create programs to boost motivation and maintain strong engagement in science education. School administrators may use the action plans presented by the researcher, which can be discussed in the next State of the School Address and implemented after scrutiny by the president and his council. For future researchers, the researcher recommends the following: they may include a larger student population and consider other institutions to gain a broader perspective on student motivations and attitudes. They may explore the direct relationship between demographic factors and attitudes toward the program to gain deeper insights.

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