

Program Alignment in Information Technology Education: The Role of NCAT Performance in BSIT Major Selection

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ARTICLE INFO

Keywords: Program Alignment, BSIT Major Selection, Admission Performance, Information Technology, Specialization Choice

Received : 04, May

Revised : 15, June

Accepted: 15, July

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ABSTRACT

This study examined the relationship between Nueva Vizcaya State University College Admission Test (NCAT) performance and BSIT major selection among first-year Bachelor of Science in Information Technology students. Using a quantitative-correlational design, data were collected from 62 respondents through a researcher-developed data extraction form and analyzed using frequency, percentage, Chi-Square Test of Independence, and Cramér's V. Results revealed that most respondents obtained an Average NCAT classification and initially preferred an IT-related academic program during admission. However, no significant relationships were found between overall NCAT performance, first, second, and third program preferences, and the respondents' chosen BSIT major specialization. The findings suggest that specialization decisions are influenced more by students' interests, career aspirations, and other non-cognitive factors than by admission performance alone. The study recommends strengthening academic advising and specialization orientation to support informed program selection.

INTRODUCTION

Higher education institutions continuously seek to improve the alignment between student capabilities and academic programs to promote academic success, retention, and employability. In computing education, admission processes commonly utilize standardized entrance examinations and academic records to determine students' readiness for degree programs. These measures serve as indicators of students' cognitive abilities and aptitude, enabling institutions to place learners in programs that match their competencies (Laus, 2021; Barroso et al., 2022). Recent advancements in educational data analytics have further emphasized the importance of admission-related data in predicting student performance and supporting evidence-based academic decision-making (Mengash, 2020; Chen & Zhai, 2023). Consequently, understanding the relationship between admission indicators and program placement has become increasingly relevant in Information Technology (IT) education.

Despite the use of admission examinations such as the Nueva Vizcaya State University College Admission Test (NCAT), many students still enroll in BSIT major specializations that may not fully correspond with their measured abilities or original academic preferences. In many higher education institutions, students select programs based on personal interest, peer influence, perceived employability, or available slots rather than objective indicators of academic preparedness (Mahadeo et al., 2020; Card & Payne, 2021). Similarly, studies have shown that admission profiles and standardized test results are associated with students' subsequent academic performance, suggesting that appropriate program placement plays a significant role in educational success (Bansiong & Balagtey, 2020; Camarista et al., 2025). However, limited empirical evidence exists regarding whether NCAT performance is associated with the specific BSIT major specialization eventually pursued by students, particularly within Philippine state universities.

The lack of empirical evidence on program alignment presents challenges for academic planners, admission committees, and curriculum administrators. Without understanding whether NCAT performance and students' initial program preferences are related to their chosen BSIT major specialization, institutions may encounter mismatches that affect student satisfaction, academic persistence, and specialization readiness. Moreover, ineffective alignment may contribute to program shifting, delayed completion, and suboptimal utilization of institutional resources. Previous studies have focused primarily on predicting overall academic performance or admission success (Ballaho, 2024; El Jireh & Mondero, 2025), while relatively few investigations have examined the relationship between admission assessment results, students' preferred academic programs, and eventual specialization decisions within Information Technology education. This gap limits the ability of universities to develop evidence-based admission and advising policies that optimize student-program fit.

Addressing this gap requires a systematic examination of the extent to which NCAT performance and students' admission preferences correspond with their selected BSIT major specialization. Identifying these relationships can provide valuable insights into the effectiveness of current admission and

academic advising practices while informing curriculum planning and student placement strategies. Furthermore, empirical findings may assist university administrators in strengthening admission guidelines, improving career counseling initiatives, and designing interventions that support informed program selection. Such evidence aligns with current trends in educational data mining and predictive analytics, where institutional data are increasingly utilized to improve student outcomes and decision-making processes (Mengash, 2020; Chen & Zhai, 2023).

In response to these concerns, this study, titled Program Alignment in Information Technology Education: The Role of NCAT Performance in BSIT Major Selection, aims to examine the relationship between students' overall NCAT performance, their first, second, and third academic program preferences during admission, and their chosen BSIT major specialization. Specifically, the study seeks to determine whether significant relationships exist among these variables to provide empirical evidence that can support admission policies, academic advising, and program alignment initiatives within Information Technology education. Ultimately, the findings are expected to contribute to data-informed decision-making that promotes better student placement, academic success, and institutional effectiveness.

LITERATURE REVIEW

Admission Performance and Student Success in Higher Education

Admission systems play a significant role in ensuring that students are placed in academic programs aligned with their abilities and preparedness. Standardized admission tests, together with previous academic performance, are widely utilized by higher education institutions to assess students' readiness for college-level education. According to Laus (2021), admission profiles, including entrance examination scores and high school academic records, significantly predict students' academic performance in higher education. Similarly, Barroso et al. (2022) found that admission requirements are associated with students' subsequent academic achievement, suggesting that institutions should continuously evaluate their admission policies to ensure that qualified students are admitted into programs that match their competencies. Therefore, admission assessments serve not only as screening mechanisms but also as indicators of students' potential for academic success.

Likewise, Bansiong and Balagtey (2020) emphasized that standardized admission examinations and previous academic achievements significantly influence students' academic performance and licensure examination outcomes. Their findings indicate that students who demonstrate stronger academic preparedness before entering college are more likely to achieve favorable academic results throughout their degree programs. Furthermore, Camarista et al. (2025) revealed that college admission test scores positively correlate with licensure examination performance, indicating that admission assessments continue to have predictive value even after students complete their academic programs. Consequently, admission tests remain valuable tools for institutions seeking to improve educational quality and graduate outcomes.

Moreover, advances in educational data mining have strengthened the use of admission information for institutional decision-making. Mengash (2020) demonstrated that machine learning algorithms can accurately predict students' academic performance using admission-related variables, enabling universities to make evidence-based admission decisions. Similarly, Chen and Zhai (2023) compared several machine learning approaches and concluded that predictive models utilizing admission data significantly improve the accuracy of identifying students who are likely to succeed academically. Hence, integrating admission data with predictive analytics provides universities with valuable insights that support student placement and academic planning.

Program Choice and BSIT Major Alignment

Students' academic program selection is influenced by multiple personal, academic, and social factors rather than academic ability alone. Mahadeo et al. (2020) proposed a Computing Identity Framework which explains that students' decisions to pursue computer science or information technology careers are shaped by their interests, self-efficacy, sense of belonging, and career aspirations. Accordingly, students often choose programs that align with their personal identity and future goals even when these choices may not completely correspond with their measured academic abilities. Therefore, understanding students' preferences becomes essential in evaluating program alignment.

Similarly, Card and Payne (2021) investigated factors affecting students' educational choices and found that personal interests, gender differences, and perceptions regarding career opportunities significantly influence students' selection of STEM-related programs. Their findings suggest that academic preparedness alone cannot fully explain students' program decisions because social and psychological factors also contribute to career choice. Consequently, higher education institutions should consider both cognitive and non-cognitive factors when developing admission and advising strategies for computing programs.

Furthermore, Hansen et al. (2024) highlighted the importance of students' sense of belonging and academic hope in influencing persistence within STEM disciplines. Their study revealed that students who perceive stronger connections to their chosen field demonstrate greater commitment and higher retention rates. Likewise, Kankaew et al. (2021) reported that Information Technology students value programs that provide relevant competencies aligned with global workforce demands, indicating that students' perceptions of program relevance also influence specialization choices. Thus, effective program alignment requires balancing institutional admission standards with students' personal interests and career expectations.

Admission Policies and Predictive Program Placement

Higher education institutions continuously refine their admission policies to ensure that students are appropriately placed in academic programs. Ogalisco et al. (2023) emphasized that well-designed admission and retention requirements contribute to improved student performance and program quality.

Their study recommended periodic evaluation of admission policies to ensure that academic requirements remain responsive to changing educational needs. Consequently, evidence-based admission policies support institutional effectiveness while promoting student success.

Likewise, Ballaho (2024) developed a decision support system that predicts students' likelihood of succeeding in Computer Science and Information Technology programs using admission data. The study demonstrated that predictive models can assist admission officers in recommending programs that better match students' competencies. Similarly, El Jireh and Mondero (2025) identified several determinants influencing successful admission into Information Systems programs among Philippine state universities. Their findings emphasize that admission decisions should incorporate multiple indicators rather than relying solely on a single examination score. Therefore, predictive decision-support systems can enhance the fairness and effectiveness of university admission processes.

Moreover, research on graduate outcomes reinforces the importance of appropriate program placement. Mina et al. (2020) reported that graduates of BSIT programs generally experience favorable employment outcomes when their acquired competencies align with industry needs. This finding suggests that selecting an appropriate specialization during college contributes to graduates' employability and professional success. Therefore, ensuring proper alignment between students' admission performance and their chosen specialization benefits both individual learners and higher education institutions.

Finally, although previous studies have established that admission examinations predict academic achievement and that students' career preferences influence program selection, limited research has simultaneously examined the relationship among admission test performance, students' preferred academic programs, and their eventual BSIT major specialization. Most existing studies have focused either on predicting academic success or evaluating admission policies independently (Mengash, 2020; Ballaho, 2024; El Jireh & Mondero, 2025). Consequently, there remains a gap in understanding how these admission-related variables collectively contribute to program alignment within Information Technology education. Addressing this gap is essential for developing evidence-based admission, advising, and specialization placement strategies that improve student outcomes and institutional decision-making.

Research Gap

Existing studies have consistently demonstrated that admission examinations and academic profiles are significant predictors of students' academic performance, retention, and licensure examination outcomes (Bansiong & Balagtey, 2020; Laus, 2021; Camarista et al., 2025). Similarly, research has shown that students' program choices are influenced by personal interests, career aspirations, and perceptions of employability (Mahadeo et al., 2020; Card & Payne, 2021), while predictive models have been developed to support admission decisions in computing-related programs (Mengash, 2020; Ballaho, 2024; El Jireh & Mondero, 2025). However, these studies have primarily

examined these variables independently, focusing either on predicting academic success, evaluating admission policies, or explaining students' career choices.

Despite these contributions, limited empirical research has investigated the relationship between NCAT performance, students' first, second, and third program preferences during admission, and their chosen BSIT major specialization within Philippine higher education institutions. Moreover, there is a lack of evidence on whether admission performance and initial program preferences are aligned with students' eventual specialization decisions in Information Technology education. This gap limits the ability of universities to formulate data-driven admission, academic advising, and specialization placement policies.

To address this gap, the present study examines the relationship between NCAT performance, program preferences, and BSIT major selection among first-year Information Technology students. The findings are expected to provide empirical evidence that can support evidence-based admission strategies, improve program alignment, and strengthen academic advising for BSIT students.

METHODOLOGY

This study employed a quantitative-correlational research design to examine the relationship between NCAT performance and BSIT major selection among first-year Bachelor of Science in Information Technology (BSIT) students at the College of Information Technology Education, Nueva Vizcaya State University-Bayombong Campus during the Academic Year 2025–2026. A total of 62 first-year BSIT students participated in the study and were selected using convenience sampling, wherein respondents were chosen based on their accessibility and willingness to participate. The study utilized a researcher-developed data extraction form to gather secondary data from the University's admission records, specifically the respondents' overall NCAT performance, first, second, and third academic program preferences during admission, and their chosen BSIT major specialization. Prior to data collection, the researcher secured the necessary approvals from the appropriate university offices and ensured that all data were treated with strict confidentiality and used solely for research purposes in accordance with institutional ethical standards.

The collected data were analyzed using both descriptive and inferential statistical techniques. Frequency count and percentage distribution were used to describe the respondents' overall NCAT performance, chosen BSIT major specialization, and first, second, and third preferred academic programs during admission. To determine whether significant relationships existed between the respondents' overall NCAT performance, program preferences, and their chosen BSIT major specialization, the Chi-Square Test of Independence (χ^2) was employed at a 0.05 level of significance. In addition, Cramér's V was computed to determine the strength of the associations between the variables. These statistical procedures provided empirical evidence regarding the alignment between students' NCAT performance, admission program preferences, and BSIT major selection.

RESULTS AND DISCUSSION

Table 1. Distribution of Respondents According to Overall NCAT Performance

NCAT Performance	Frequency	Percentage
Superior	1	1.61%
High Average	7	11.29%
Average	35	56.45%
Low Average	18	29.03%
Transferee	1	1.61%
Total	62	100.00%

Table 1 presents the distribution of respondents according to their overall NCAT performance. The majority of the respondents (35 or 56.45%) obtained an Average NCAT classification, followed by those with Low Average (18 or 29.03%) and High Average (7 or 11.29%). Only one respondent (1.61%) achieved a Superior classification, while another respondent (1.61%) was categorized as a Transferee. These findings indicate that most first-year BSIT students admitted to the program demonstrated average cognitive readiness based on their NCAT results. This supports the findings of Laus (2021), who reported that admission profiles generally reflect the academic preparedness of students entering higher education and may serve as useful indicators in evaluating student placement and academic support.

Table 2. Distribution of Respondents According to Chosen BSIT Major Program

BSIT Major Program	Frequency	Percentage
Network Design and Management (NDM)	30	48.39%
Web and Mobile Application Development (WMAD)	32	51.61%
Total	62	100.00%

Table 2 shows the distribution of respondents according to their chosen BSIT major program. Results reveal that 32 respondents (51.61%) selected Web and Mobile Application Development (WMAD), while 30 respondents (48.39%) chose Network Design and Management (NDM). The nearly equal distribution suggests that students' interests are relatively balanced between software development and networking specializations. This finding is consistent with

Mahadeo et al. (2020), who emphasized that students' specialization choices in computing disciplines are influenced by individual interests, perceived competencies, and future career aspirations rather than a single determining factor.

Table 3. Distribution of Respondents According to Their First Preferred Academic Program During Admission

First Choice Program	Frequency	Percentage
IT-related Program	47	75.81%
Non-IT Program	15	24.19%
Total	62	100.00%

Table 3 presents the respondents' first preferred academic program during admission. A substantial majority (47 or 75.81%) identified an IT-related program as their first choice, whereas 15 respondents (24.19%) selected a non-IT-related program. The results indicate that most respondents entered the university with an initial intention of pursuing an Information Technology-related degree. This finding supports the Computing Identity Framework of Mahadeo et al. (2020), which explains that students' academic program preferences are strongly influenced by their interests, self-efficacy, and long-term career goals.

Table 4. Distribution of Respondents According to Their Second Preferred Academic Program During Admission

Second Choice Program	Frequency	Percentage
IT-related Program	30	48.39%
Non-IT Program	30	48.39%
None	2	3.23%
Total	62	100.00%

Table 4 presents the respondents' second preferred academic program during admission. The findings reveal an equal distribution between IT-related programs (30 or 48.39%) and non-IT-related programs (30 or 48.39%), while 2 respondents (3.23%) did not indicate a second program preference. This balanced distribution suggests that although many students initially preferred IT programs, they also considered alternative disciplines during the admission process. Such findings align with Card and Payne (2021), who reported that

students' program preferences are shaped by multiple factors, including career opportunities, personal interests, and perceived academic fit.

Table 5. Distribution of Respondents According to Their Third Preferred Academic Program During Admission

Third Choice Program	Frequency	Percentage
IT-related Program	23	37.10%
Non-IT Program	36	58.06%
None	3	4.84%
Total	62	100.00%

Table 5 illustrates the respondents' third preferred academic program during admission. The majority (36 or 58.06%) selected a non-IT-related program, while 23 respondents (37.10%) identified an IT-related program, and 3 respondents (4.84%) reported having no third choice. The findings imply that students increasingly explored non-IT alternatives beyond their primary academic preferences, reflecting the diversity of their educational interests. This observation is consistent with the findings of Card and Payne (2021), who suggested that students often consider multiple academic pathways based on perceived opportunities and personal circumstances.

Table 6. Relationship Between Overall NCAT Performance and Chosen BSIT Major Program

Variables	χ^2	d f	p- value	Cramer's V	Interpretation
Overall NCAT Performance Chosen BSIT Major Program	4.829	4	0.305	0.279	Not Significant

Table 6 presents the relationship between respondents' overall NCAT performance and their chosen BSIT major program. The Chi-Square Test of Independence revealed no statistically significant relationship between the variables, $\chi^2(4) = 4.829$, $p = .305$, since the computed p-value is greater than the 0.05 level of significance. Moreover, the Cramer's V value of 0.279 indicates a weak association between NCAT performance and BSIT major selection. Therefore, the null hypothesis is accepted (fail to reject), suggesting that students' NCAT performance did not significantly influence whether they selected Network Design and Management or Web and Mobile Application Development. This finding is consistent with Mahadeo et al. (2020), who

emphasized that specialization decisions are often driven by personal interests and career aspirations rather than academic aptitude alone.

Table 7. Relationship Between First Preferred Academic Program and Chosen BSIT Major Program

Variables	χ^2	df	p-value	Cramer's V	Interpretation
First Preferred Academic Program Chosen BSIT Major Program	0.557	1	0.455	0.095	Not Significant

Table 7 shows the relationship between respondents' first preferred academic program and their chosen BSIT major specialization. The computed $\chi^2(1) = 0.557$, $p = .455$ indicates that there is no significant relationship between the two variables. Likewise, the Cramer's V value of 0.095 signifies a very weak association. These results imply that although most respondents initially preferred an IT-related program, this preference did not significantly determine whether they eventually selected NDM or WMAD. The findings support Card and Payne (2021), who argued that students' educational decisions evolve through multiple experiences and are not solely dependent on their initial program preference.

Table 8. Relationship Between Second Preferred Academic Program and Chosen BSIT Major Program

Variables	χ^2	df	p-value	Cramer's V	Interpretation
Second Preferred Academic Program Chosen BSIT Major Program	2.471	2	0.291	0.200	Not Significant

Table 8 presents the relationship between respondents' second preferred academic program and their chosen BSIT major specialization. The Chi-Square analysis yielded $\chi^2(2) = 2.471$, $p = .291$, indicating no statistically significant relationship at the 0.05 significance level. Additionally, the Cramer's V value of 0.200 suggests a weak association between the variables. Thus, the respondents' second-choice academic program was not significantly associated with their eventual BSIT major selection. This result supports previous studies indicating that students' specialization decisions are influenced by a combination of academic, personal, and institutional factors rather than secondary program preferences alone (Mahadeo et al., 2020).

Table 9. Relationship Between Third Preferred Academic Program and Chosen BSIT Major Program

Variables	χ^2	df	p-value	Cramer's V	Interpretation
Third Preferred Academic Program Chosen BSIT Major Program	0.661	2	0.719	0.103	Not Significant

Table 9 presents the relationship between respondents' third preferred academic program and their chosen BSIT major specialization. The computed $\chi^2(2) = 0.661$, $p = .719$ indicates no statistically significant relationship between the variables. Furthermore, the Cramer's V value of 0.103 reflects a very weak association. Accordingly, the null hypothesis is accepted (fail to reject), indicating that respondents' third-choice academic program had no significant influence on whether they selected NDM or WMAD. This finding suggests that specialization decisions are more likely shaped by other factors such as personal interests, career expectations, and institutional guidance rather than by lower-ranked program preferences, consistent with the findings of Card and Payne (2021) and Mahadeo et al. (2020).

CONCLUSIONS AND RECOMMENDATION

Based on the findings of the study, the following conclusions were drawn regarding the relationship between NCAT performance, program preferences, and BSIT major selection among first-year Bachelor of Science in Information Technology students:

1. The majority of the respondents obtained an Average NCAT performance, indicating that most students admitted to the BSIT program demonstrated average academic readiness based on the university's admission assessment.
2. More than half of the respondents selected Web and Mobile Application Development (WMAD) as their BSIT major, while the remaining respondents chose Network Design and Management (NDM), suggesting a relatively balanced distribution of students across the two specializations.
3. Most respondents identified an IT-related program as their first preferred academic program during admission, whereas their second and third program preferences became more diverse, with an increasing number selecting non-IT-related programs.
4. There was no significant relationship between respondents' overall NCAT performance and their chosen BSIT major specialization, indicating that admission test performance alone did not determine whether students selected WMAD or NDM.
5. There was no significant relationship between the respondents' first, second, and third academic program preferences and their chosen BSIT major specialization, suggesting that students' eventual specialization decisions were not significantly influenced by their admission program preferences.
6. The findings imply that other factors, such as personal interests, career aspirations, perceived employment opportunities, family influence,

institutional orientation, and awareness of BSIT specializations, may have played a greater role in students' specialization choices than NCAT performance or initial program preferences.

Recommendations

Based on the findings and conclusions of the study, the following recommendations are offered:

1. The College of Information Technology Education (CITE) may strengthen its academic advising and career guidance initiatives by providing students with comprehensive information about the BSIT major specializations before enrollment to help them make informed decisions aligned with their interests and career goals.
2. The University Admission Office may continue utilizing the NCAT as one of the admission requirements but should consider incorporating other factors, such as students' interests, career aspirations, and specialization awareness, in advising students on their BSIT major selection.
3. The BSIT Program Coordinators and Faculty Members may conduct regular orientation seminars, specialization forums, and career talks highlighting the competencies, curriculum, and employment opportunities of both Network Design and Management (NDM) and Web and Mobile Application Development (WMAD) to improve students' understanding of each specialization.
4. The Guidance and Counseling Office may strengthen career assessment and counseling services by integrating aptitude, interest, and career preference assessments to assist students in selecting the BSIT major that best matches their abilities and long-term professional objectives.
5. Since NCAT performance and admission program preferences were not significantly associated with students' chosen BSIT major specialization, the University may review its specialization placement policies to ensure that they also consider non-cognitive factors, including students' motivation, career interests, and informed choice.
6. Future researchers are encouraged to replicate the study using a larger and more diverse sample from multiple higher education institutions and to investigate additional factors that may influence BSIT major selection, such as personal interests, family influence, socioeconomic background, awareness of specializations, and career expectations. Advanced statistical techniques, such as logistic regression or structural equation modeling, may also be employed to develop more comprehensive models of specialization choice.

FURTHER STUDY

Based on the findings of the study, the following recommendations for future research are proposed:

1. Conduct a similar study involving multiple state and private universities to validate whether the findings are consistent across different institutional settings and larger populations.

2. Investigate the influence of personal, family, social, career, and institutional factors on BSIT major selection using multivariate statistical techniques to determine the strongest predictors of specialization choice.
3. Examine the relationship between students' awareness of BSIT specializations and their chosen major program to determine whether awareness significantly influences specialization decisions.
4. Explore whether NCAT subtest scores (e.g., logical reasoning, mathematics, verbal ability, and abstract reasoning) are associated with specific BSIT major specializations rather than relying solely on overall NCAT classification.
5. Conduct a longitudinal study to determine whether students' chosen BSIT major specialization influences their academic performance, retention, internship outcomes, and employability after graduation.
6. Develop and evaluate an AI-assisted decision support system that integrates NCAT results, students' interests, career preferences, and awareness of BSIT specializations to recommend the most appropriate specialization for incoming students.

ACKNOWLEDGMENT

The researcher expresses sincere gratitude to everyone who contributed to the completion of this study, especially the participant for valuable participation and to his family and friends for their unwavering support and encouragement. The researcher also acknowledges the use of GPT-5, Gemini, and Microsoft Copilot for generating ideas and assisting in the formulation of the survey statement indicators. All AI-generated outputs were reviewed, validated, and refined by the researcher to ensure their accuracy and alignment with the objectives of the study.

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