

A Theory of Planned Behaviour-Based Analysis of IT Specialisation Choices in a South African Historically Disadvantaged Institution

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Abstract:

Decisions to specialise in Information Technology (IT)-based courses have notably gained prominence in shaping academic pathways among students, more specifically within historically disadvantaged institutions (HDIs) within South Africa, influenced by persistent socio-economic factors. While research has examined factors influencing career decisions, including specialisation decisions, in IT, there has been minimal use of theory-based frameworks, particularly within resource-constrained contexts of higher education. In this regard, this research aims to investigate the factors influencing IT students' specialisation decisions at a historically disadvantaged institution in South Africa, applying the Theory of Planned Behaviour as the framework for this inquiry. The research employed a cross-sectional design and was conducted among 104 second- or third-year Information Technology students recruited through stratified random sampling. The research findings revealed that attitudes toward IT specialisation decisions have had the greatest influence, relative to subjective norms, while perceived behaviour control has had relatively less influence. Overall, 34.1% of the variation in specialisation decisions was accounted for in the study. As this study draws on the Theory of Planned Behaviour to examine specialisation decisions in IT at historically disadvantaged institutions in South Africa, it aims to make a relevant contribution within the field of informatics education.

Keywords: *Informatics Education, Historically Disadvantaged Institutions, HDIs, IT Specialisation Choice, Student Career Decision-Making, Theory of Planned Behavior.*

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Introduction

The rapid advancement of digital technology has increased the need for specialised Information Technology (IT) skills in the job market, thereby raising the stakes for making an informed program/stream choice in higher educational settings. Specialisation areas within informatics studies, including software development, networking, and emerging digital sectors, shape students' skill sets, employability, and ultimate career pathways (Redmond, 2022; Young et al., 2018). Pursuing IT specialisations, however, requires a multifaceted approach that is not solely driven by personal interest.

These challenges are even more visible in historically disadvantaged institutions (HDIs) in South Africa. HDIs continue to be plagued by structural challenges arising from historical inequalities, including limited access to high-quality technological infrastructure, sub-optimal development of career guidance facilities, and learning exposures that are not industry-aligned (Jonck & Swanepoel, 2019; Thiem & Dasgupta, 2022). Consequently, the students registering for information technology studies in such environments could be hindered by a lack of autonomy in specialisation choice, depending instead on the counsel of colleagues, the expectations of their families,

or the guaranteed job security that comes with such specialisations, as opposed to educational suitability (Ndovela & Mutanga, 2024).

Current literature on IT and computing career choices primarily focuses on well-equipped institutions and on independent variables such as employment opportunities, expected salaries, and academic performance (Mahmud et al., 2023). While the above studies are beneficial in their own right, they do not provide sufficient information on the interconnection among variables in resource-constrained educational institutions. Further, there has been insufficient research in informatics education on the use of existing behavioural theories to address IT specialisation career choices in HDIs.

The Theory of Planned Behaviour (TPB) is a robust model that enables the study of educational decision-making by incorporating the effect of attitudes, subjective norms, and perceived control on intended and resulting behaviours (Ajzen, 2020). TPB has also been commonly used to study issues in education and careers. However, previous studies on TPB have insufficiently examined the roles of these factors in HDI settings, given their potentially greater weight in disadvantaged educational contexts like HDIs. Thus, a lack of adequate scientific research and data impedes the design of an appropriate curriculum, career assistance programme, and student support schemes that are suited to the realities of IT education in HDIs. Another important model is the Social Cognitive Career (SCC) Theory, which underlines self-efficacy and outcome expectations. However, TPB is more applicable in this study, as it accounts for social pressure and perceived control, which are particularly important in a deprived educational environment like HDIs.

Therefore, this research seeks to address a distinct lacuna in empirical studies and theory, particularly by considering IT program specialisation decision-making at an HDI in South Africa using the TPB. That is, the study examines how individual students' preferences, perceived social pressure, and perceived control over their decision-making affect specialised decisions. This study is highly relevant to informatics education as it provides an empirical basis for curriculum structuring, academic advising, and digital skills development initiatives in resource-constrained institutions. *What factors influence specialisation choices by IT students at historically disadvantaged institutions?*

This study is valuable for informing education in an area by investigating the choice of specialisation in an IT program within HDI, which remains underresearched. Applying the TPB to analyse program-level specialisation decisions within an informatics curriculum, the paper points out that attitudes and subjective norms shape students' specialisation choices. The findings have important practical implications for curriculum design in informatics and for academic guidance, calling for the organised incorporation of IT streams and socially structured mechanisms of support to assist intelligent decisions of specialisation.

Although more research has been conducted on career choices in IT and computing, most studies are limited to students from resource-rich institutions or to a subset of determinants, be it employability or passion. There has been limited empirical work using an integrated behavioural framework to identify the determinants of IT programme specialisation in the HDIs, which social expectations with the associated institutional constraints may fundamentally influence. Within the author's purview, no study has empirically examined how TPB constructs jointly affect IT specialisation in the context of HDI. Therefore, there is insufficient evidence to guide the design of curricula, educational counselling, and structured guidance interventions in contexts of impecunious informatics education. The study seeks to fill this gap by applying an empirical test via the TPB on IT specialisation to select programs at a historically disadvantaged institution in South Africa.

Literature Review

Career Choices at Historically Disadvantaged Institutions

Career development practices within disadvantaged institutions are greatly impacted by the absence of formalised career guidance processes, as reported by Jonck & Swanepoel (2019). The existence of socio-economic inequality influences the careers of HDIs, which can be attributed to the historical injustices of apartheid. The lack of formalised career guidance is one of the most important considerations affecting students in HDIs, especially in the context of specialisation, where they receive insufficient information or advice. Pillay (2020) argued that the lack of

formalised career guidance increases students' reliance on external advice; however, this claim remains contested in subsequent literature. Students are thus left with the advice of peers or talk about what would be best. Effective programs have demonstrated the importance of providing experience-based career guidance through exposure and interactive learning, thereby giving individuals the opportunity to broaden their horizons and make more informed decisions.

However, in light of this information-related challenge, another critical factor influencing the career decision-making processes of HDIs includes financial hardships. Several students from low-income backgrounds often find themselves at crossroads, forced to make career decisions influenced by the permanence of employment and short-term economic gains, rather than their long-term goals (Thiem & Dasgupta, 2022). In this regard, some students cannot pursue career training such as AI and Cybersecurity due to financial hardship, despite having the talent and interest. There are psychological issues linked to career decision-making. As stated by König & Freitas (2023), stereotype threat, which arises from the fear of confirming a negative stereotype, adversely affects students. As a result, they lose confidence, which further alters how they consider their future career goals. In this scenario, the individuals are likely to avoid difficult career decisions, despite the potential to excel. Therefore, students' career decision-making processes within HDIs are influenced not only by their preferences but also by various socio-economic factors. Improved institutional changes are required to address the imbalances identified in the HDIs.

Factors that influence specialisation choice

Various researchers have sought to identify the factors influencing students' career choices related to Accounting, Engineering, Medicine, and IT Studies. For example, Mahmud et al. (2023) identified participants' concerns about financial gains, company culture, reputation, and market conditions as core determinants of specialisation choice among business students. Sumo et al. (2023) shows that career-related factors such as perceived job security and future job availability strongly influence Information Systems students' choice of study and career path. All these studies clearly indicate that career- and success-related factors are major determinants of specialisation choice decisions.

Personal factors and societal dynamics also play an important part in the choices that students make. According to Khir et al. (2023) and Redmond (2022), students are usually attracted to particular streams of studies owing to their personal interests, family values, and peer influences. Specifically, according to Khir et al. (2023), many people are attracted to their chosen field owing to their passion and personal strengths; yet, those around them play a crucial role in the final choice that they make. Likewise, Kortak (2018) observed a strong influence of personal factors among many individuals, but familial advice remains the primary factor, even after discounting environmental influences.

There have also been studies concentrating on gender issues. Research by Miller et al. (2024) and Cardador et al. (2024) has revealed that women in engineering tend to select specialisations that suit their jobs, are restricted by programs, or are influenced by social factors. In medicine, research by Levailant et al. (2020) and Sarikhani et al. (2021) has revealed that gender, lifestyle, and work-life balance are critical determinants of their choices.

In the information technology sector, Young et al. (2018) identified job security as a critical determinant of optimism and commitment. Ndovela and Mutanga (2024) argued that mentorship and academic support play a crucial role in shaping students' choices. Socio-environmental factors and limited exposure have been identified Mutanga et al. (2023) as critical determinants of students' choices. These assertions imply that students' specialisation choices do not occur through a single factor.

Attitudes Toward IT Specialisation

Attitudes refer to students' positive or negative disposition toward a particular IT specialisation, typically influenced by job marketability, personal interest, and job market forecasts (Ajzen, 2020). Across the wide array of computing and informatics education, studies reveal the influence of job marketability and personal interests on students' program choices (Young et al., 2018). Studies aligned with the current discourse, professional recognition, and job market demand were identified as influencing students' academic interests (Mahmud et al., 2023).

Despite these obstacles, inconsistencies remain in the empirical findings. Although some literature finds personal interest to be a more potent motivator than extrinsic factors such as financial reward and status (Redmond, 2022), personal interest/passion, along with economic security, is a primary factor for an HDI institution (Thiem & Dasgupta, 2022). There appears to be ambiguity regarding IT specialisation as a motivating factor for HDI institutions, given their demand and income status.

Subjective Norms and Social Influence

Subjective norms are described as social pressure from families, friends, teachers, and communities to adopt a certain behavioral practice (Ajzen, 2020). Findings from previous studies suggest that social influence has a significant influence on academic and career decisions, especially within a collectivist or resource-constrained social context (Kortak, 2018; Sarikhani et al., 2021). In information technology education, for instance, social influence and career choice are closely linked; teacher and peer support influence students' career choices, as suggested by Ndovela & Mutanga (2024).

However, there exists variation in the relative strength of subjective norms, which has been observed in studies. For example, there exist studies that have reported that as students continue their education and become more proficient, social influence fades away (Young et al., 2018). However, there have also been studies that concluded that, even at higher levels of education, family expectations remain prominent (Khir et al., 2023). These inconsistencies necessitate exploring subjective norms in institutional contexts, especially in HDIs, where the role of family expectations remains salient.

Perceived Behavioural Control and Structural Constraints

Perceived behavioral control can be described as the students' perception of the potential to gain success in their choice of specialisation, within the context of the resources available to them (Ajzen, 2020). With regards to information technology studies, the presence of resources and training in information technology has been noted to boost the aspiring students' level of confidence and the intention to join a more difficult program in information technology (Gieure et al., 2020). The absence of resources and support for academics was observed to be associated with a lack of control and can be a deterrent for those who want to pursue a resource-demanding field of specialisation (Thiem & Dasgupta, 2022).

Results from empirical analyses of the implications of Perceived Behavioural Control have yielded mixed observations. Studies have identified significant associations of this predictor in educational and career choices (Ajzen, 2002), whereas others found less significant correlations, particularly in contexts where other people's control over others affects personal liberty ((La Barbera & Ajzen, 2020)). This variation in data observations indicated the presence of factors within Perceived Control, thereby validating its importance in examining Higher Dimensional Institutions (HDIs).

Justification for the Theory of Planned Behaviour

This study adopts the TPB because it is explicitly designed to explain deliberate, intention-driven academic decision-making within constrained environments, making it well-suited to analysing IT programme specialisation choices at HDIs (Ajzen, 2002; Ajzen, 2020). TPB integrates attitudes, subjective norms, and perceived behavioural control, enabling simultaneous examination of students' personal evaluations of IT specialisations, social influences from family, peers, and lecturers, and perceived limitations arising from institutional resources and academic support. Alternative models were considered but not adopted because they were not aligned with the study focus. SCC Theory emphasises self-efficacy and long-term career development processes. It is more appropriate for longitudinal analyses of career trajectories than for cross-sectional examinations of programme-embedded specialisation decisions (Brown & Lent, 2019). Broader career development theories similarly prioritise life-span vocational identity formation, yet offer limited explanatory power for specific academic choices made within fixed curriculum structures. Expectancy Value theory explains educational choice through perceived success and task value (Eccles &

Wigfield, 2020), but does not explicitly model normative social pressure or treat contextual constraints as a distinct construct. In contrast, TPB directly incorporates social influence and perceived control, which are particularly salient in HDI contexts where family expectations and resource limitations strongly shape student decisions, making it the most parsimonious and context-appropriate framework for this study and extending its application within informatics education. Based on this theoretical justification, the following section outlines how the TPB is operationalised as the analytical framework for this study.

Theoretical Framework

This study is grounded in the TPB, which explains how attitudes, subjective norms, and perceived behavioural control jointly shape deliberate academic decisions (Ajzen, 2020). TPB serves as the analytical framework in this research to interpret IT specialisation programme choices within an HDI, in which choices depend on both personal judgments and structural factors.

Within this paradigm, attitudes reflect students' perceptions of IT courses, based on ease of employability, relevance of curriculum content, and personal interest. In informatics education, a favourable attitude could arise from interactions with certain programming courses, networking courses, or a perceptive fit between a stream and labour market demand. Subjective norms reflect social pressure from families, friends, and lecturers, which is particularly important for HDIs where students apparently lack formal career-related support frameworks (Ajzen, 2020). Perceived behavioral control is students' perception of their capacity to succeed in a chosen IT stream of interest, based on the malleability of learning factors, infrastructural provisions, quality of tutorial support, and prior educational prerequisites (Ajzen, 2002; Ajzen, 2020; Gieure et al., 2020).

Using the TPB, this study can explain the factors that lead to the appeal of certain IT specialisations attracting more students despite similar study requirements, or the possibly less important role of control factors when students' autonomy seems limited by the institution. Hence, this theory serves as a unifying framework for addressing issues related to variable selection, measurement, or the interpretation of study results, and for understanding the alignment of individual, social, or institutional factors associated with the enrolment or appeal to certain IT specialisations.

Research Design

For this research, a quantitative cross-sectional survey design was used. The study was conducted among students at an HDI in South Africa, examining factors that determine their specialisation choices in IT programmes. Quantitative research was well-suited to this study as it examined correlations between TPB variables and specialisation choice.

The population of interest was second and third-year IT students, as specialisation course enrolments are formally undertaken at these levels. Stratified random sampling was used to proportionally represent these two groups. The minimum sample size was calculated using a Raosoft sample size calculator with a 95 percent confidence, 5 percent margin of error, and a 50 percent response rate, yielding a required sample of 139 students from a population of 217. These were employed because they are commonly used in behavioral and educational settings (Queirós et al., 2017) to balance precision and practicability. A total of 104 usable responses were collected, yielding a response rate of 74.8 percent, which is lower than desired but still sufficient for multiple regression with three predictor variables and well above the required ratio of observations to predictors to mitigate bias from nonresponse.

A structured, self-administered questionnaire was employed, which was adapted from existing TPB measures (Ajzen, 2002; Gieure et al., 2020). The survey comprised four sections, highlighting perceived attitude, subjective norms, perceived control, and IT specialisation choice. Each area of focus contained ten items, all of which utilized a five-point Likert Scale ranging from strongly disagree to strongly agree. Some adjustments were made in line with IT programme streams, and institutional factors were considered. Content validity was established by aligning with definitions of TPB constructs. Validation of the adjustments made, also reviewed by two academics in the field of informatics education, supported this stage of validation. Some Students also pre-checked the survey to improve readability and validation.

Data analysis was conducted using SPSS. The demographic and response variables for the constructs were identified through descriptive statistics. Reliability of the data was assessed using Cronbach's alpha, which exceeded 0.70; all constructs were reliable. The relationships among the variables were determined using Pearson's correlation, and multiple regression analysis determined the prediction of the variables of the theory of planned behaviours in the choice of specialisation. The assumptions of multiple regression analysis were all satisfied, including the normality, linearity, multicollinearity, and homoscedasticity assumptions. Clearance was sought from the institution's ethical committee.

Results

Response Rate

The study achieved a total of 104 responses, giving a response rate of 74.8%. High response rates are important for ensuring the validity of a study, and low response rates can threaten the validity owing to non-response bias (Queirós et al., 2017; Struminskaya, 2021). The demographic variables used in the study are gender, age, race, level of study, field of study, employment, and internet use. Differences in data offer distinct perspectives on the demographic characteristics of the study respondents and their access to technological resources.

Demographics Information

Demographic data helps with understanding the participants. The study sample included 51.9% male participants, 45.2% female participants, and 2.9% whose gender was not disclosed. Most respondents were aged 16 -20 (60.6%), followed by 34.6% aged 21-25, and 4.8% above 25. Most of the students were African (95.2%), with 3.8% identifying as Coloured and 1% as Indian; no White or Other respondents were included. Most students were in Year 2 (69.2%), while 30.8% were in Year 3. Enrolment is slightly higher in Software Development (57.7%) than in Communication Networks (42.3%). Most students were unemployed (74%), with 19.2% working full-time and 6.7% part-time. Internet access is primarily through university (37.1%), residence (36%), or home (26.9%), with smartphones (45.7%) and laptops (38.3%) as the most used devices. Only 13.5% have work experience directly related to the stream, while 67.3% have none.

Reliability Test

Table 1 reports the internal consistency reliability of the study constructs. A reliability test was conducted to assess the internal consistency of the questionnaire measuring perceived attitude, subjective norms, perceived behavioural control, and specialisation choice. All constructs exceeded the accepted Cronbach's alpha threshold of .70, indicating satisfactory internal consistency of the measurement instrument.

Table 1. Reliability table for the research variables

Variable	No of items	Cronbach's Alpha (α)
PA	10	0.937
PBC	10	0.808
SN	10	0.886
FS	10	0.885

Descriptive Statistics

Table 2 presents descriptive statistics for the TPB constructs and specialisation choice. Perceived attitude reported the highest mean, indicating that students generally viewed IT specialisation favourably. Subjective norms and specialisation decisions reported moderate mean values, indicating the role of social factors in those decisions, while Perceived Behavioural Control reported the lowest mean value, indicating possible limitations in resources and institutional support.

Table 2. Pearson Correlation Matrix: Descriptive Statistics

Variable	Mean	Std. Deviation	N
PA	40.28	7.62	104
PBC	31.82	6.31	104
SN	34.39	8.54	104
FS	35.82	7.28	104

Correlation Analysis

Table 3 shows the results of the Pearson correlation test performed to identify correlations among perceived attitude (PA), perceived behavioral control (PBC), subjective norms (SN), and information technology specialisation choice (FS). Results revealed that perceived attitude was most strongly and positively associated with specialisation choice ($r = 0.513$, $p < 0.01$), indicating that students who positively react to information technology streams tend to specialise in them. Furthermore, subjective norms were positively associated with specialisation choice ($r = 0.420$, $p < 0.01$), accounting for the impact of family, friends, and teachers on students' choices. Furthermore, perceived behavioural control was moderately associated with specialisation choice ($r = 0.415$, $p < 0.01$), symbolising the aspect of ability and availability. Moreover, the TPB constructs, particularly between perceived attitude and perceived behavioural control, showed a positive association ($r = 0.504$, $p < 0.01$), indicating shared perception among students on information technology specialisation choice.

Table 3. Pearson Correlation Matrix: Correlations

Variable		PA	PBC	SN	FS
PA	Pearson Correlation	1	.504**	.302**	.513**
	Sig. (2-tailed)		.000	.002	.000
	N	104	104	104	104
PBC	Pearson Correlation	.504**	1	.281**	.415**
	Sig. (2-tailed)	.000		.004	.000
	N	104	104	104	104
SN	Pearson Correlation	.302**	.281**	1	.420**
	Sig. (2-tailed)	.002	.004		.000
	N	104	104	104	104
FS	Pearson Correlation	.513**	.415**	.420**	1
	Sig. (2-tailed)	.000	.000	.000	
	N	104	104	104	104

**. Correlation is significant at the 0.01 level (2-tailed).

Regression Analysis

Table 4 presents the regression model summary for predicting IT programme specialisation choice. Model 1, which included only perceived attitude, accounted for 26.3 percent of the variance in specialisation choice ($R^2 = .263$), indicating that students' attitude plays a significant role in influencing specialisation choices. The addition of

subjective norms in Model 2 increased the explained variance to 34.1 percent ($R^2 = .341$), indicating a model fit. A decrease in the standard error of estimate from 6.27 to 5.96 also supports the conclusion that the addition of subjective norms improves estimation accuracy. It can be concluded that while perceived attitudes significantly influence the choice of IT specialisation, social factors also contribute to its explanation.

Table 4. Regression Model Summary

Model	R	R ²	Adjusted R ²	Std. Error of the Estimate
1 (PA only)	.513	.263	.256	6.27
2 (PA, SN)	.584	.341	.328	5.96

ANOVA Results

Table 5 presents the ANOVA table for the regression models to predict the selection of IT programme specialisation. For Model 1, with only the perceived attitude predictor, the result is significant, $F(1, 102) = 36.48$, $p < 0.001$, showing that the model accounts for variance in specialisation selection. Similarly, in Model 2, with the subjective norm predictor, the result is significant, $F(2, 101) = 26.12$, $p < 0.001$. Both models having significant results imply that they are useful for explaining the data, hence validating the inclusion of subjective norms as an independent variable in IT selection.

Table 5. ANOVA Summary

Model	Sum of Squares	df	Mean Square	F	Sig.
1 (PA only)	1436.16	1	1436.16	36.48	.000**
2 (PA, SN)	1858.58	2	929.29	26.12	.000**

Table 6 shows the regression coefficients derived from the models estimating the choice of specialisation in the choice of the IT programmes. From Model 1, it was found that the perceived attitude positively and significantly influenced specialisation choice ($\beta = 0.513$, $p < 0.001$), implying that a positive appraisal of the IT streams plays an important role in the choice of students. When the subjective norm was introduced into Model 2, the perceived attitude was still a positive and significant predictor of specialisation choice ($\beta = 0.425$, $p < 0.001$). However, the subjective norm was an important positive predictor of specialisation choice ($\beta = 0.292$, $p = 0.001$), implying the impact of persuasion by families, friends, and university lecturers. However, the introduction of the subjective norm reduced the impact of the perceived attitude, implying a possible shared determinant of the two constructs.

Table 6. Regression Coefficients

Predictor	B (Unstandardized)	Std. Error	Beta (Standardized)	t	Sig.
Model 1					
Constant	16.08	3.33	-	4.83	.000**
PA	0.490	0.081	0.513	6.04	.000**
Model 2					
Constant	10.91	3.50	-	3.12	.002**
PA	0.406	0.081	0.425	5.02	.000**

SN	0.249	0.072	0.292	3.45	.001**
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Discussion

These results must be noted in the context that the study was carried out in a single institution of higher education (HDI), thus having limited generalisation. Nonetheless, the results show that the factor with the highest magnitude in the prediction of the specialisation choice of IT students in the institution of interest is attitude. Additionally, in the regression result, a significant positive impact of attitude on specialisation was observed ($\beta = 0.425$, $p < 0.01$), which implies that students who are enthusiastic about a particular IT stream are inclined to specialise in it. The result can be ascribed to the fact that a significant number of studies in the field of higher computing and informatics education in higher educational institutions establish that perception of factors such as employability, individual interest, and alignment with the curriculum have a great impact on the student choice (Young et al. 2018). Additionally, at the institutional level of the HDI, it can be presumed that a number of IT domains are less open to the students, thereby increasing the impact of the attitude factor in the institutions interested in specialisation choice.

Subjective norms were also a predictor of IT specialisation, whereby students with stronger subjective norms tend to choose IT as a specialisation in IT ($\beta = 0.292$, $p = .001$). This shows that external pressure, in the form of family, friends, and lecturers, remains important in students' pursuit of education. This is supported by previous studies, whereby external pressure remains an important factor in informatics fields despite no formalised structure in place concerning career planning (Khir et al., 2023; Ndovela & Mutanga, 2024).

Conversely, a finding that appeared to contradict Ajzen's theory was the non-significance of the regression coefficient for perceived control on the choice of specialisation in higher education. Institutional environmental factors may constrain students' perceptions of control over their potential for academic attainment, rather than belief in their personal ability to accomplish their goals. In studies conducted in better-equipped settings, the control construct has been a strong predictor of academic decision-making (Ajzen, 2002).

Theoretical Implications for TPB in Resource-Constrained Settings

The evidence indicates that, in HDIs, perceived behavioral control is externally limited by institutional factors, rather than by personal capability. The study extends the Theory of Planned Behavior by demonstrating how structural inequities mediate the formation of behavioral intention within Informatics Education.

Conclusion

The research focused on identifying the factors influencing students' specialisation choices in IT programmes at an HDI using the TPB. The current research provides empirical evidence to informatics education research on how IT specialisation choices are influenced by the interplay of behavioral factors and the constraining environment of higher education. However, this research is limited to a single case and to applying the research model at a given point in time. As such, future studies could focus on applying the model to additional institutions and surveying informatics education institutions to obtain longitudinal observations of how student choices change over time. Nevertheless, this research provides empirical evidence on how IT specialisation choices are influenced through the interplay of behavioral factors and the constraining environment of higher education. From the perspective of informatics education research, evidence suggests that improving exposure to the curriculum, enhancing academic advising practices, and formalising on-mentoring practices could exert greater influence on student choices than practices aimed at advancing developments in individual capabilities. From an institutional perspective, given the principal limitations identified above, applying the proposed research model to additional institutions may provide empirical evidence by indicating how institutions compare in their influence on student choices toward IT specialisations. At the same time, survey research may help capture more evidence on how informatics education institutions are employing more appropriate academic advising practices to advance student decision-making. Finally, survey research may help reveal how institutions are exerting more appropriate influence on students' choices, thereby advancing the development of informatics education institutions.

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