



Factors Affecting Career Preferences and Pathways: Insights from IT Students

Murimo Bethel Mutanga¹, Philip Xolisa Piyose², Sithembile Lydia Ndovela³

^{1,2,3}Department of Information and Communication Technology, Mangosuthu University of Technology, Umlazi, Durban, South Africa

Email: ¹mutangamb@mut.ac.za, ²piyose.xolisa@mut.ac.za, ³ndovelasl@mut.ac.za

Abstract

The selection of an appropriate career path plays a pivotal role in shaping students' futures and can greatly enhance their employability prospects. By making well-informed decisions, students can align their educational pursuits with their professional aspirations, ensuring a seamless transition from academia to the workforce. This study aims to investigate the career choices of IT students within the Department of ICT. Through an analysis of the career choices made by students in these specific areas, the research seeks to uncover the underlying factors that influence their decision-making processes. By examining the career preferences of IT students, this research endeavor seeks to provide valuable insights into the motivations, interests, and aspirations that drive their choice of specialization. Additionally, it aims to explore how external factors, such as industry trends, job market demands, and personal experiences, impact their decision-making. Understanding these factors can offer valuable guidance to educational institutions, curriculum developers, and career advisors, enabling them to provide tailored support and guidance to IT students, thus facilitating more informed career decisions. Ultimately, the findings of this study will contribute to a better understanding of the career preferences and pathways within the IT field. This knowledge can aid educators and institutions in developing relevant and responsive curricula, fostering an environment that nurtures students' talents and equips them with the necessary skills and knowledge for their chosen career paths. Additionally, it can assist students in making informed choices that align with their passions and long-term goals, ultimately enhancing their employability and success in the dynamic and ever-evolving IT industry.

Keywords: career choices, preferences, IT students, computer programming, computer networks, decision-making, motivations, interests, employability

1 INTRODUCTION

Education has long been recognized as a key pathway to social and economic empowerment, and the role it plays in shaping one's career cannot be underestimated. Making informed choices about career paths is vital, as these decisions directly impact the type and quality of careers individuals pursue, consequently influencing their social and economic status [1]. Such choices hold particular importance in the context of South Africa's tertiary education landscape,



where 26 public universities produce approximately 250,000 graduates annually, contributing to intense competition in the job market. The University of South Africa (Unisa) alone awards over 54,000 certificates, diplomas, and degrees annually, reflecting the immense number of students seeking higher education. Moreover, South Africa grapples with a high unemployment rate, currently at 30%, intensifying the need for students to make wise career choices to improve their employability prospects. For instance, the Mangosuthu University of Technology (MUT) offers a diverse range of 30 different qualifications across three faculties, serving approximately 4,000 students annually. In such an environment, making the right career choices becomes crucial for students' success.

The impact of career choices on employability has been well-documented [2]. Making a good career choice not only affects the likelihood of securing employment but also plays a role in determining whether a student successfully completes their chosen qualification [3]. Therefore, providing effective career guidance to students becomes essential to their academic and professional success [4]. Understanding the various factors that influence career choices is of paramount importance as it forms the bedrock for providing students with meaningful and effective career guidance. These factors constitute a diverse array of elements that interplay to shape an individual's career trajectory and professional aspirations. A comprehensive exploration of these factors is crucial in assisting students to make informed decisions that align with their personal preferences, strengths, and long-term goals [5].

One of the key determinants of career choices is personal interests. Every individual possesses unique passions and inclinations, and these intrinsic motivations heavily influence the direction they wish to take in their professional journey. When students are genuinely enthusiastic about a specific field or subject, they are more likely to excel and find fulfillment in their careers, ultimately contributing to their overall job satisfaction and success. Serendipity, or unexpected occurrences and chance events, can also play a significant role in career decisions. Chance encounters, life experiences, or even random opportunities may unexpectedly steer individuals toward certain career paths. These serendipitous moments can expose students to fields they hadn't previously considered, opening new possibilities and avenues for exploration.

Practical considerations, such as salary considerations, are also influential factors. Students often contemplate the potential financial rewards and stability associated with different career options. While money shouldn't be the sole driving force behind career decisions, it undeniably plays a crucial role in shaping students' choices, especially considering their future financial security and quality of life. Labor market dynamics and industry trends are also crucial factors impacting career choices. Understanding the demand for specific skills and expertise in the

job market helps students make choices that align with current and future workforce needs. In fast-paced and ever-changing industries like IT, staying informed about emerging trends can be vital for making forward-looking career decisions.

Furthermore, the potential for financial rewards and career growth in a particular field significantly influences students' decision-making. Many students seek career paths that offer opportunities for advancement, skill development, and potential for upward mobility. Knowing that their chosen field provides a clear and achievable career progression can instill a sense of purpose and commitment to their educational pursuits. Beyond these factors, the overall work environment and company culture in a given field can also influence career decisions. Students often consider the work-life balance, job flexibility, and the general atmosphere in their desired career paths to ensure they fit well with their personal values and lifestyle choices.

Overall, the interplay of personal interests, serendipity, salary considerations, labour market dynamics, and the potential for financial rewards weaves a complex tapestry that shapes students' career choices. Recognizing and understanding these multifaceted factors is essential in providing students with relevant and tailored career guidance, empowering them to embark on paths that resonate with their passions and align with their long-term aspirations. By acknowledging this, educational institutions and career advisors can play a pivotal role in facilitating more informed and successful career decisions for students. As such, this research investigates the career choices made by IT students within the Department of ICT. This study aims to provide valuable insights into the motivations, interests, and aspirations driving their choices by analyzing the underlying factors influencing their decision-making processes.

The outcomes of this research will be of significant value to educational institutions and career advisors. By gaining a deeper understanding of the factors that influence students' career choices, institutions can better equip students with relevant skills and knowledge, thus enhancing their employability and success in the industry. In the subsequent sections, we will detail the methodology employed for data collection and analysis, present the findings of our investigation, and discuss the implications of our research.

This research paper is based on Social Cognitive Career Theory (SCCT) by Lent, Brown and Hackett. SCCT emphasizes that the interaction between individual factors, outcome expectations and personal goals are key components for student's career choices. According to [7] SCCT has good applicability in school career guidance and provides a comprehensive framework for explaining and predicting career development. Compared to other theories, SCCT offers a

perspective on guiding adolescents' interest formation, professional (career) choice and performance. This research seeks to answer the following research questions from the students' perspective: (1) How are basic academic and career interests develop? (2) How are career choices made? Therefore, SCCT is applied in this research to ponder beliefs, experiences, environmental factors and social influences of IT students' career awareness and preferences.

The key concepts of the SCCT framework that inform the context of this work are self-efficacy, environmental factors, informational (personal/background) factors, and decision-making factors. As shown in Figure 1, data such as experiences, emotional arousal, skills, educational background, students' interest, and external factors must be collected to be aware of how students chose their career. Informational factors include demographics of the participants of this research. To understand the student, background information which includes gender, age group, educational background, exposure to technology and so on is collected. It is believed that background and or personal information of the student is one of the influential factors for career choices.

The rest of the paper is structured as follows: In section 2 we present the literature review while section 3 explains the methodology. Section 4 discusses the findings before conclusions are given in section 5.

2 METHODOLOGY

This paper is based on Social Cognitive Career Theory (SCCT) [6]. SCCT emphasizes that the interaction between individual factors, outcome expectations and personal goals are key components for student's career choices. According to [7] SCCT has good applicability in school career guidance and provides a comprehensive framework for explaining and predicting career development. Compared to other theories, SCCT offers a perspective on guiding adolescents' interest formation, professional (career) choice and performance. This research seeks to answer the following research questions from the students' perspective: (1) How are basic academic and career interests develop? (2) How are career choices made? Therefore, SCCT is applied in this research to ponder beliefs, experiences, environmental factors and social influences of IT students' career awareness and preferences.

The key concepts of the SCCT framework that inform the context of this work are self-efficacy, environmental factors, informational (personal/background) factors, and decision-making factors. As shown in Figure 1, data such as experiences, emotional arousal, skills, educational background, students' interest, and external factors must be collected to be aware of how students chose their career.

Informational factors include demographics of the participants of this research. To understand the student, background information which includes gender, age group, educational background, exposure to technology and so on is collected. It is believed that background and or personal information of the student is one of the influential factors for career choices.

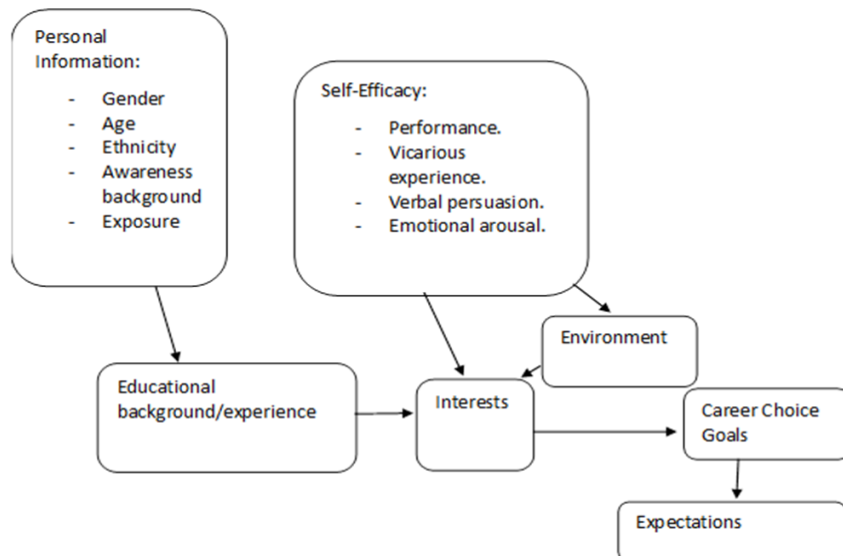


Figure 1. Social Cognitive Career Theory [6]

2.1 Personal Factors

Personal interests emerge as a primary driver of career choices, reflecting an individual's intrinsic motivations and passions [8]. However, personal interests may be shaped and influenced by external factors, such as peer recommendations or media portrayals [4]. The dynamic interplay between these internal and external factors illustrates the complexity of personal influences on career choices.

2.2 Social Factors

Social influences play a significant role in students' career decisions, with family preferences and teachers' advice being particularly impactful [8]. The convergence of family expectations, teacher guidance, and peer influence can shape students' perceptions of different career paths, either reinforcing or challenging their personal interests. Moreover, cultural factors further enrich the social dynamics, as different cultures may place varying degrees of emphasis on specific career choices [9].

2.3 Academic Factors

Academic departments and majors can significantly impact students' career choices by providing exposure to particular fields and industries [8]. The alignment between school subjects and career decisions reinforces the connection between academic pursuits and future careers [10]. However, students' awareness of career paths may vary, illustrating the need for comprehensive career guidance to enhance their understanding of available opportunities [11].

2.4 Job-Related Factors

Job prestige, job security, and potential remuneration are all job-related factors that inform students' career choices [12]. These factors often intertwine with personal interests and social influences. For example, some careers may be perceived as prestigious due to cultural norms or family expectations, influencing students' perceptions of the job market and potential rewards.

2.5 Institutional Support

The role of school counsellors and university professionals is crucial in providing students with career guidance [12]. However, the literature suggests that the support provided by school counsellors may sometimes be limited, necessitating the involvement of other stakeholders, such as parents and teachers [4].

2.6 Environmental Factors

The students' environment, encompassing both social and educational factors, can significantly impact their career choices [5]. The quality of educational opportunities, exposure to diverse career options through activities like job-shadowing and career exhibitions, and the socio-economic background of the students all intertwine to shape their career decisions.

The literature on factors influencing students' career choices showcases the intricate interplay of various dimensions. Personal factors, social influences, academic pursuits, job-related considerations, cultural norms, institutional support, and environmental influences all converge to form a complex web of factors shaping students' career decisions. The dynamic relationships between these factors highlight the importance of a holistic approach to career guidance, one that recognizes the diverse and interconnected influences impacting students' choices. By acknowledging this complexity and taking a comprehensive perspective, educational institutions, parents, teachers, and career advisors can empower students to make well-informed, purpose-driven career choices that align with their unique strengths, passions, and aspirations.

2.7 Population

The population for this study consists of first year students studying IT at Mangosuthu University of Technology. The total number of students is 130.

2.8 Sample and sampling method

Questionnaires were sent using a link to all the 130 students. However, only 85 students responded.

2.9 Data Gathering

Data gathering was conducted using an online questionnaire sent via email to all the first-year students. The questionnaire was designed to gather information on various aspects related to IT studies, programming, and computer networks. The questionnaire allowed for both closed-ended and open-ended questions to capture both quantitative and qualitative data. Interviews were also conducted in the classroom. This allowed the investigator to further understand the problem under investigation.

2.10 Data Analysis

The data analysis for this study involved both qualitative and quantitative methods. The qualitative data obtained from the open-ended questions in the questionnaire and the interviews were subjected to thematic analysis. Thematic analysis involves identifying patterns, themes, and categories within the data to gain a deeper understanding of the participants' experiences and perspectives. The initial analysis from the questionnaire helped identify areas that required further exploration. To gain additional insights, interviews were conducted in groups, allowing for more in-depth discussions and the opportunity to clarify responses or explore new themes that emerged during the interviews. By employing a mixed-methods approach, this study aimed to provide a comprehensive understanding.

3 RESULTS AND DISCUSSION

3.1 Social Factors

Almost all the participants were influenced by past students into choosing IT. However, almost half of them have indicated that they are willing to change their career given the chance. Furthermore, they seem not to be sure of actual job opportunities that they need to apply for after completing their qualifications. This therefore suggests that although past students have influenced the decision of new students, the new students haven't researched into what the career entails.

Almost two thirds of the participants were influenced by what they see around them as well as what they read for their career choice. On the contrary, only half of the participants are satisfied with their choice. This suggests that although they may have been influenced by the environment around them, they never considered if their strengths in relation to the career choice.

3.2 Environmental Factors

The rapid evolution of technology has left a mark on society, transforming daily activities and shaping various aspects of our lives. Technological advancements are ubiquitous, evident in movies depicting highly technological spaces. As a result, students considering careers in IT are profoundly influenced by the fascinating world of technology that surrounds them. This sparks an interest in pursuing IT-related careers, with 60% of the students' reporting passion for IT being a significant motivator for enrolling in the Diploma in IT program.

However, after a few months into the IT program, over 60% of the students reported that they now consider changing their careers. This suggests that technological advancements and personal interest may not be the sole determinants of career choices. The IT field's demanding nature becomes apparent, and students may face challenges they did not anticipate during the initial stages of career exploration. Inadequate career guidance might have played a pivotal role in this scenario, particularly for students from disadvantaged schools with limited resources and exposure to comprehensive career guidance programs. Notably, limited exposure to crucial IT skills, such as programming, is evident among a significant portion of students before choosing their career paths. Only 9% of the students reported that they have prior exposure to computer programming. This limited exposure may affect their preparedness in pursuing IT careers, potentially leading to disillusionment or struggles in their academic and professional journeys. Consequently, this highlights the importance of providing students with ample opportunities to explore and develop the necessary skills before committing to a career path.

Poorly informed career choices can have significant repercussions, both economically and psychologically, for individuals who realize the challenges and demands of the IT field later. Students might encounter difficulties securing satisfying employment or advancing their careers, leading to potential frustration and a reevaluation of their choices. This underlines the urgency of offering appropriate career guidance and support to help students make informed decisions about their future.

Interestingly, students indicated that their secondary school environment and experiences had little to no influence on their career choices. This points to a

potential gap in career guidance and support at the secondary school level, leaving students without adequate guidance during this critical phase of decision-making. In conclusion, technological advancements and personal interests have a significant impact on IT students' initial career choices. However, the challenges and realities of the IT field, limited exposure to essential skills, and a lack of comprehensive career guidance may prompt some students to reconsider their choices. To address these issues, educational institutions and career advisors must provide tailored career guidance and support, enhance exposure to technology-related skills, and ensure equitable access to opportunities for all students. By bridging these gaps, we can empower students to make well-informed and sustainable career decisions that align with their passions, strengths, and aspirations.

3.3 Academic Performance

IT is widely perceived as a challenging and demanding field, making a good academic background crucial for students wanting to pursue careers in this industry. One important aspect to consider is previous exposure to the field of IT in High school. High school students who have been exposed to IT concepts and experiences are more likely to develop an interest in pursuing careers in this field. However, our findings reveal that only 16% of the students had prior exposure to IT before joining the program. This limited exposure may be attributed, in part, to the students' backgrounds, with many coming from rural areas and townships where access to technology and IT-related opportunities might be scarce.

Interestingly, only 27% of the respondents felt that their matriculation results were good enough to pursue a career in IT. This suggests a degree of lack of confidence among these students in their academic capabilities. In addition, a significant percentage (80%) of the students indicated that their academic history did not influence their career choice in IT. However, it is crucial to consider the importance of considering academic performance when making career decisions. The findings reveal that although academic performance can be a critical factor affecting students' career choices, very few students considered their academic performance when making career choices. As a results, 62% of the students expressed dissatisfaction with their career choice only 6 months into the program. Most of them cited poor academic performance in the first semester as a reason for their discontent.

Despite their unhappiness with their career paths, it is noteworthy that the students have not dropped out of the IT program. Although this may indicate a degree of resilience and determination to persevere, it may affect students' commitment over time, jeopardizing the chances of completing their programs. This observation highlights the importance of assessing one's academic performance and capabilities before committing to a career path. Educational

institutions and career advisors must strive to provide adequate exposure and support to students, encouraging them to make well-informed choices based on their academic strengths and interests. Ultimately, empowering students with the knowledge and awareness of academic implications on their career choices can lead to greater satisfaction, success, and fulfillment in the dynamic and demanding IT industry.

3.4 Career awareness and job prospects

Career awareness is a crucial aspect that significantly influences young adults when making career choices. Having comprehensive knowledge about career paths and job opportunities is essential for making informed decisions about one's future. However, our findings indicate that many students have limited knowledge about the careers available to them. This lack of awareness may be attributed to the absence of thorough career guidance during their secondary school years, where they should have received essential information and support in exploring various career options. The pressure and anxiety of moving forward can overshadow the importance of understanding one's career passions and how they align with work opportunities. Consequently, some individuals may lack clarity about their career choices and the employment prospects associated with them. A significant percentage (40%) of the participants were uncertain about their career choices and job prospects before selecting IT as their major for their Diploma. This uncertainty suggests that external influences, such as past students and family surroundings, may have contributed to their career decisions.

One's compatibility with a chosen profession in terms of skills and interests significantly impacts job satisfaction and productivity. Higher job satisfaction is often a result of aligning one's career with their passion and abilities. However, our findings indicate that most of the participants were influenced by perceived high salaries and employment availability, rather than considering how well the career suited their interests and capabilities. This suggests that some students may have selected the IT field based on external factors rather than their genuine passion for the industry.

Another noteworthy finding is that students had a vague understanding of the various career paths within the IT industry and were not fully aware of the diversity of careers available. Their perception of the industry as highly rewarding might have overshadowed the need for a deeper understanding of the specific roles and opportunities within IT. Consequently, almost half of the participants changed their minds about continuing within the IT field after seven months into the program. This suggests that without a comprehensive understanding of the industry and their specific career options, some students may feel disillusioned and decide to explore other paths.

Surprisingly, even among students who were initially passionate about pursuing IT as a career, around 27% no longer held the same level of passion. This change in passion could be attributed to a lack of clear career awareness, causing them to reassess their choices and preferences over time.

4 CONCLUSION

The study explored the career choices of IT students and identified key factors influencing their decisions. Social factors, such as gender representation and the influence of past students, played a role in shaping initial choices. However, technological advancements and personal interests also influenced decisions, leading some students to reconsider their careers due to the demanding nature of the IT field. Academic performance emerged as a critical aspect, highlighting the importance of a good academic background for success. Limited exposure to essential IT skills and a lack of comprehensive career guidance could hinder students' preparedness and lead to dissatisfaction. Comprehensive career awareness is crucial in guiding students towards fulfilling paths. Providing tailored guidance, fostering skill development, and encouraging self-awareness are vital roles for educational institutions and career advisors. In conclusion, informed career choices lead to increased employability and success in the dynamic IT industry. By addressing these factors, we can cultivate a new generation of well-prepared IT professionals, contributing to the growth and innovation of the field.

REFERENCES

- [1] G., Z. Wu, Hu, and J. Zheng, "Role stress, job burnout, and job performance in construction project managers: the moderating role of career calling," *International journal of environmental research and public health*, vol. 16, no. 13 p. 2394, 2019.
- [2] S. N. Jaafar, N. Zakaria, and N. Abd Rasheid. "Career choice and employability skills for vocational college students. in *Journal of Physics: Conference Series*," IOP Publishing, 2018.
- [3] J. Allen and S. Robbins, "Effects of interest–major congruence, motivation, and academic performance on timely degree attainment," *Journal of counseling psychology*, vol. 57, no. 1, p. 23, 2010.
- [4] A. S. Kazi and A. Akhlaq, "Factors affecting students' career choice," *Journal of research and reflections in education*, vol. 2, no. 2, pp. 187-196, 2017.
- [5] ACHAMRAH, M., "Factors influencing Moroccan University students' choice of academic majors: Mohammed V University, FLHS in Rabat as a case study," *World Journal of Advanced Research and Reviews*, vol. 14, no. 2, pp. 185-195, 2022.

- [6] S. D. Brown, R. W. Lent, K. Telander, S. Tranayne, "Social cognitive career theory, conscientiousness, and work performance: A meta-analytic path analysis," *Journal of Vocational Behavior*, vol. 79, no. 1, pp. 81-90, 2011.
- [7] Lent, R.W. and S.D. Brown, "Social cognitive career theory at 25: Empirical status of the interest, choice, and performance models," *Journal of Vocational Behavior*, pp. 103316. 2019.
- [8] M. R. Siddiky and S. Akter, "The Students' Career Choice and Job Preparedness Strategies: A Social Environmental Perspective," *International Journal of Evaluation and Research in Education*, vol. 10, no. 2, pp. 421-431, 2021.
- [9] P. Akosah-Twumasi, T. I. Emeto, D. Lindysay, K. Tsey, and B. S. Malau-Aduli, "A systematic review of factors that influence youths career choices—the role of culture," in *Frontiers in Education*. 2018
- [10] E. Mutekwe, M. Modiba, and C. Maphosa, "Factors affecting female students' career choices and aspirations: A Zimbabwean example," *Journal of Social Sciences*, vol. 29, no. 2, pp. 133-141, 2011.
- [11] N. A. Yusran, M. H. M. Puad, and M.K. Omar, "Role of Career Exploration in Influencing Career Choice among Pre-University Student," *Pertanika Journal of Social Sciences & Humanities*, vol. 29, 2021.
- [12] H. D. Singaravelu, L. J. White, and T. B. Bringaze, "Factors influencing international students' career choice: A comparative study," *Journal of Career Development*, vol. 32, no. 1, pp. 46-59, 2005.
- [13] R. Stockdale, and T. Keane, "Influencing the influencers: The role of mothers in IT career choices," *Journal of Information Technology Education: Innovations in Practice*, vol. 15, pp. 181-194, 2016.