UNDERSTANDING STUDENT SUCCESS IN THE CONTEXT OF LIVED EXPERIENCES OF INFORMATION TECHNOLOGY EDUCATION GRADUATES: A PHENOMENOLOGICAL STUDY

Maimona M. Asum[1] and Fernando T. Capilitan, Jr[2]
Department of Technical and Technology Education
University of Science and Technology of Southern Philippines, Republic of the Philippines
For Correspondence: Tel. +63 908 883 9002[1]
Email: maimona.asum@msumain.edu.ph[1] fernando.capilitan@ustp.edu.ph[2]

ABSTRACT: *Attaining success in one's area of specialization is a key academic objective for every student pursuing higher education. The notion of student success covers not alone the attainment of academic objectives, but also the pursuit of personal satisfaction and the generation of a constructive influence on society. Several studies were conducted to predict the variables that affect students' success in information technology education; however, few have been conducted to examine how these variables affect underrepresented groups, like those learners attending higher education institutions in developing Asian countries, especially the Philippines. Prioritizing holistic student development is crucial for educational institutions to cultivate a feeling of purpose and well-being among their students. Applying phenomenological study using focus group discussion and interviews to Information Technology and Computer Science graduates of Mindanao State University, Marawi City, Philippines, this study identified four major themes that played a crucial role in the achievement of students in completing information technology education programs, namely: external influence, student persistence, institutional commitment, and value formation. A much broader sample size from different institutions and the inclusion of viewpoints from employers and industry experts is recommended for further studies which could yield significant insights into the requisite abilities and attributes essential for achieving success in the professional domain.*

Keywords: *Information Technology Education, Lived Experiences, Student Success*

INTRODUCTION

The notion of student success in postsecondary education is a varied and intricate phenomenon that has been extensively studied and discussed. Research suggests that universities should see student achievement as a multidirectional endeavor that affects both the institution and the students [1]. By defining and assessing student success, an institution can become more capable of transforming itself to better meet the requirements of its students on campus [1] and behave responsibly in support of the country's economic development [2]. One of the significant measures that determines student success in higher education is completion rates. The idea is that students who succeed will stick with their courses, complete their programs, and receive their diplomas [3]. Furthermore, a successful institution that prioritizes student achievement and fosters economic growth is indicated by high completion rates. These highlight the direct relationship between the nation's economic progress and the completion rates of learners in higher education.

In the context of information technology education, completion in information technology education necessitates far more than just acquiring knowledge. Graduates in computer science and information technology must possess both a professional demeanor and the ability to use their knowledge to succeed in their sector [3]. However, throughout the past few decades, there has been a steady decline in the completion rates of information technology education. A 2015 report by the Japan International Cooperation Agency on Data Collection Survey for the Higher Education Sector in the Philippines reveals that outdated curricula and a lack of qualified teachers have contributed to a decline in information technology education completion rates [5]. The number of students per faculty person in IT-related fields in 2013–2014 was 78.2, indicating that the number of faculty members does not keep pace with the growth in student enrollment. Furthermore, the curriculum created for IT-related fields does not offer enough relevance in the context of the IT industry [5. 6].

This phenomenon can point to the need for additional resources and assistance for students who want to pursue this field. Therefore, more investigation is required to identify the fundamental causes of this tendency. Any barriers that might be keeping students from seeking an education in information technology should be removed. Many studies have been done to predict the variables that affect students' success in information technology education [6-9]; however, few studies have been conducted to examine how these variables affect underrepresented groups, like those attending higher education institutions in developing Asian countries, especially the Philippines. Understanding the opportunities and challenges faced by underrepresented populations in accessing information technology education can be gained from examining the Philippines, which limits the generalizability of findings on information technology education, particularly when compared to other developing countries in Asia.

This paper seeks to investigate numerous aspects of student achievement and offer suggestions for enhancing results, ultimately illuminating viable approaches to close the digital divide and build a more just and inclusive community. The research question that serves as the study's guiding principle is, "What are the descriptions provided by Information Technology Education graduates about their lived experiences while studying at the university and eventually working in the field?"

METHODOLOGY

The present study employed qualitative research methodologies to collect comprehensive perspectives from alumni of ITE, facilitating a profound comprehension of their encounters within academic and professional contexts. This

study employed phenomenological research to ascertain the fundamental nature of the lived experiences of ITE graduates within the framework of student achievement. Phenomenology is both a philosophy and a practice that focuses on comprehending lived experiences. Its methodology entails studying a limited number of subjects through deep and prolonged involvement to identify patterns and correlations of meanings [10]. This methodology facilitated a more comprehensive examination of the viewpoints held by the participants and the various elements that influenced their achievements or difficulties. This study sought to reveal valuable insights that might enhance educational procedures and support systems for future ITE graduates by focusing on the core aspects of their experiences.

A focus group discussion and a key informant interview were conducted with selected ITE alumni of Mindanao State University to capture their narratives. The individuals included in this study were intentionally chosen from a uniform cohort of graduates from the ITE programs at Mindanao State University. The individuals included in this study can be classified as a homogenous group due to two factors: (1) they have completed ITE programs provided at the Mindanao State University Marawi Campus, and (2) they have shared personal accounts of their experiences during their time as students at the university.

Table 1. Demographic Profile

	Focus Group Discussion FGD (n = 15)	Key Informant Interview KII (n = 9)
Sex		
Male	12	6
Female	3	3
Year Graduated		
2007	1	0
2008	1	0
2009	1	0
2010	0	1
2011	4	1
2014	0	1
2015	3	1
2016	2	2
2017	0	1
2018	2	1
2020	0	1
2022	1	0
Program Attended		
BS Computer Science	6	2
BS Information Technology	9	7
Profession		
IT Related	13	9
Non-IT Related	2	0

Table 1 displays the demographic characteristics of the individuals who took part in the focus group deliberations and key informant interviews. There were twenty-four participants purposely selected to participate in focus group discussions and key informant interviews. Seventy-five percent (75%) of the participants are male while twenty-five percent (25%) are female. In terms of programs attended, sixty-seven percent (67%) of the participants were conferred with a degree in BS Information Technology while thirty-three percent (33%) of the participants graduated with the degree in Bachelor of Science in Computer Science. In terms of the graduates' employment outcomes, twenty-two, or 91.67% of the participants are employed in an IT-related profession while the remaining two, or 8.33% of the participants are employed in a non-IT-related profession.

To ensure its suitability and dependability, the researcher created a pre-established questionnaire that experts later verified. Subsequently, an interview script was devised, incorporating the verified inquiries. The researcher used the script during key informant interviews and the moderator used it during focus group discussions to gather open-ended, emerging data. The major objective of this data collection was to derive themes from the collected information [10].

The participants' narratives were gathered via focus group discussions and key informant interviews. Due to the participants' geographical location, the conversation and interview were conducted via the Zoom online platform. The videos that were recorded were transcribed word for word, including any non-verbatim sounds.

The present study employed conventional content analysis techniques and categorized the textual data collected. The transcribed texts were analyzed using Delve from Delvetool.com. Delve is a software application utilized for the analysis of qualitative data [11].

RESULTS AND DISCUSSION

This section identifies the themes that contributed to the success of ITE students based on their lived experiences. The themes were derived from the narratives provided by the participants during focus group sessions and key informant interviews. A total of 15 people were involved in the focus group sessions, while 9 participants were interviewed individually. The data was subjected to a theme analysis using a conventional content analysis approach.

The results of the thematic analysis identified four primary themes, namely: (a) the impact of external influence; (b) the persistent nature of students; (c) the commitment of institutions; and (d) the significance of values formation. Table 2 presents selected fragments from the participants' conversations and interview sessions.

Table 2. Themes that emerged from the focus group discussions and key informant interviews

Narratives	Categories	Themes
Even when I was young, I always looked forward to MSU since it was the university where my mother graduated and she has good stories to tell about MSU aside from it being a good school, it is also affordable (KII09). In our place, MSU is very popular coz you get to be a scholar if not, you only have to pay P80 for a tuition fee. Becoming a scholar in MSU gives me pride (FGD1P1). When I was in high school,	Good Feedback	External Influence

four of my neighbors who happened to be smart were enrolled in BSIT at MSU, that's why I was encouraged to enroll in the program (FGD1P2).		
When I entered the computer science department, I liked the vibe, it seemed like everyone was treated as a family member and then the students and the teachers recognized my programming skills (FGD2P3). At MSU where I see a diverse environment with diverse people and it is good since everyone is friendly (KII09). Here I think the environment setup is very good for studying because there's less distraction (KII07)	Campus experience	
I think one of the biggest contributors is support from parents like having my parents in campus (KII03). Maybe the support from my family is mental aside from financial support (KII01).	Emotional and financial support	
When I was in my third year I started to join an organization, I must say I needed that kind of support coz I would burn out in my academics and I needed another outlet for me to realize that I'm still a normal person because I get to do the things they do without thinking about activities and programming (KII09) I guess it has helped me in some way I was more involved in small groups that are into sports, academics, and religion since it had provided some relief from my stress (KII03).	Social interaction	
My being an officer in the college organization because I was exposed to significant experiences like IT support	Leadership roles	
Yes, I'm the type of student who if there are assignments and requirements to be submitted, I will never sleep until I can finish, so yes I do apply time management whenever I have requirements to submit to (KII06). It gave me benefits whenever I'm with my classmates who are cramming up during study time because I get to listen to their discussion and thereby learn as well (KII03).	Habits	Student Persistence
I think there is a need to be proficient in English to synthesize language and then translate it into programming (KII03). I think there are some cases of course like most of the time logical reasoning is very important in creating algorithms (KII07). I just learned to love (Math) because I realized this is what computer science and I progressed because I accepted that Math is part of computer science and I have to harness what is in me that is weak (FGD1P1) Yes, Math helped me do critical and logical thinking (KII04). In high school, we are already introduced to C++ and Visual Basics (FGD2P5) I was already computer literate when I was in high school (KII04).	Computational Skills	
The data structure and the database courses. I'm so lucky because sir was my teacher. Somehow he's being a perfectionist is the reason why I learned database (FGD2P3). I think similar to my classmate I was disappointed in my database class at that time because we were tasked to do reporting even though we did not have an idea even on the concept of database. In the end, I had a very limited understanding of the concept of database and I only learned more about it after I graduated (FGD2P2). My teacher does not spoon-feed information (FGD1P2). One of our teachers does not allow us to be dependent on computers which is why he trained us on paper programming and code snippets without the use of computers(KII09) Somehow academic advising helped especially during my first year when I did not have any knowledge about the curriculum then my academic adviser guided me on what subjects to take (KII01). I do not have a laptop but Sir Rommel gave me one, yes even in life he mentored me (KII02). One of the mentors that has truly helped me is Sir. He is	Mentorship	

very kind and he has taught me so much to the point of challenging my ability (KII02)		
I experienced burnout in my third year when almost all activities, system projects, and papers went altogether I thought of shifting but my peers stopped me from my plan telling me that I was about to complete the program. They encouraged me (FGD1P2) If there are difficult subjects like programming and because I graduate without having any computer at all, I usually spend overnights with a classmate who has a computer (FGD1P3). It is a big factor having batchmates that will help you pursue the program (FGD1P4)	Collaborative Learning	
When I was in my third year, I already developed a system for PIS which ran for 7 years. I worked on this project together with fellow students (KII02)	Experience	
So many pre-requisites which led to too many tutorial classes. The problem is when you are admitted in the second semester, for sure you will be delayed because of off-semester courses (FGD2P6). It is good because our teacher told us that it is better to conduct OJT in the IT industry so that we'll have first-hand experience in our field (KII09). You get motivated to study because of just the thought of being kicked out because you failed plus you get to repeat the subject not on the following semester but after that and no I did not get discouraged on the policies (KII06). One thing I liked about the university is the recognition system (KII07).	Institutional Policies	Institutional Commitment
For me, I think the online learning resources is a really big help although it is challenging during our time because the speed of the internet is very slow compared to today when we can even use mobile data (FGD1P3) I believe there should be a technology available, especially under the ITE program because it would be	Academic Support	
difficult to upskill if there is no available technology to be used (KII05). Most of the resources are from the internet so it is a basic necessity, it is non-negotiable, when I was a student it helped (KII07). During our time I can say that I was not capable of buying a computer which is why I am very thankful to the college for allowing me to have overnights so that I could finish my system and thesis using the computers in the laboratory room (FGD2P3) Maybe if during our time facilities were available, then we could have a better academic performance (FGD1P1) Yes, somehow the laboratory facilities helped me in my learning since I was able to consult with my teachers during laboratory hours (KII01)		
I was third year in social work at that time when I talked to my mom about my plan to shift to BSIT, she discouraged me telling me that I would lose my scholarship and my good grades. In the end, she agreed that's why I was able to shift to BSIT and start all over again (FGD2P5). During the college entrance examination, I failed so instead I enrolled in BS Library Science. One year later, I again took the college entrance exam which I passed. Then I shifted to BSIT (FGD1P2) I continued with a BS in computer science even though it took me six years before I graduated. I did not shift or transfer to another program (FGD1P3) my mind is set on IT since I know that in cases of future jobs, IT is endless and I realized that when I graduated and landed on a job related to IT. every organization needs an IT (KII01). even while I was a student I wanted to earn something reliable and that idea became my fighting spirit (FGD1P6).	Perseverance	Value Formation
For me, it is about satisfaction and self-fulfillment, when I am happy with what I am	Self-fulfillment	

doing, and get excited because with my work and my knowledge, I can give back to the community (FGD2P5). it gave me gratification when I graduated in BS computer science although I only considered myself successful when I was able to apply my knowledge in computer science and people such as my colleagues gave value to my skills (FGD2P1). I consider myself successful upon graduation and received accolades and recognition FGD2P2).		
I consider myself successful since I was able to apply my knowledge in my work (KII08).	Confidence	

External Influence

The concept of external influence encompasses five distinct elements, including positive feedback, campus ambiance, emotional and financial assistance, social engagement, and leadership roles. The 38 narrative statements of the participants provide support for these categories. Throughout the focus group session and interviews, participants expressed the factors that influenced their decision to join Mindanao State University's ITE program. As per FGD2P1, "*maybe it is prejudiced because even before I came to MSU, I already had good feedback about MSU coming from students who graduated from my school and happened to study at MSU Marawi*." ITE students were determined to pursue a high standard of education, regardless of the physical separation between the institution and their homes. This finding also indicates that the university has successfully implemented a robust feedback system for graduating students. Regarding the selection of the ITE program, participants were able to articulate the influence exerted by their family members on their decision-making process. KII01 said that his computer programming skills were shaped by his high school teacher. His enjoyment of the topic ultimately persuaded him to seek a Bachelor of Science degree in Information Technology. While several individuals were unable to physically visit the college before enrolling, there were participants, such as KII09, who hail from Marawi City and had the opportunity to visit the campus during their time as students. He had the opportunity to witness the lifestyle of university students residing on the campus, which offers little distraction due to its remote location from urban areas. Another factor that exerted an external influence on the success of ITE students in the program is the social interaction among their peers and other students within the campus community. KII07 found that engaging in social interactions with fellow students helped him adapt to the learning difficulties presented by the program. He emphasized that having friends provided some respite from the tension caused by the program. The study supports Chapman's College Choice Model, which posits that external factors such as familial and social influences, institutional qualities, and personal attributes of the student all have a role in determining a student's success in the program [12]. Furthermore, it was asserted that a significant factor contributing to a student's success in the program is their active participation in the learning communities on campus [13].

Student Persistence

The theme of student persistence emerged as the most prevalent among the four selected themes, as shown by the participants' highest number of lived experiences. The theme encompasses five distinct categories, namely habits, computational skills, mentorship, collaborative learning, and experience. Ninety-one statements were derived from the participants based on these categories. The study habits and time management of ITE students have a significant influence on their ability to endure and make progress in the program. FGD1P1 encountered few disruptions from the campus surroundings due to its remote location, enabling him to concentrate on his academic pursuits. This assertion is substantiated by research that posits that possessing effective study habits and proficient time management abilities is a contributing factor to achieving achievement [14], [17].

The category of computational skills has been observed to exert a significant influence on students' perseverance in achieving success in the ITE program. The acquisition of programming skills at the university level poses a significant barrier for both students and educators, particularly for students who lack prior programming experience [7]. Moreover, there is a strong association between proficiency in mathematics and logical thinking and the success of students [7-9, 16-19]. Language aptitude, similar to mathematics aptitude, has a substantial influence on computational skills as it is linked to the capacity to acquire syntactic rules [20]. KII03 suggests that proficiency in English is necessary for synthesizing language and subsequently translating it into programming. Additionally, FGD1P3 remarked that mathematics has contributed to the improvement of his analytical abilities. Nevertheless, despite their acknowledgment of the significance of mathematics in fostering computing abilities, students expressed their perception of mathematics as challenging to comprehend. Several participants were unable to complete the program within the designated timeframe due to their failure in math classes.

Mentorship is an additional classification that aligns with the overarching issue of student persistence. The study centers on the participants' shared narratives regarding mentorship, which are influenced by their teacher's competency in the subject matter, the teacher's teaching strategies, the mentors' relationship and support, and academic advising. Academic advising plays a crucial role in shaping a student's educational and professional progression, serving as a vital mechanism for addressing apprehensions and issues regarding the student's achievement [17]. FGD1P4 stated, *"Yes, it is a big factor in academic advice because maybe without them, I might not be able to finish at MSU or I might have shifted to a different program*." The case of FGD1P4 highlights the significance of academic advising in facilitating student achievement since academic advisers sometimes assume the role of secondary parents for students residing and pursuing education in distant locations. The

participants have identified variables that contribute to the success of teachers, namely in terms of their competence in the subject matter and their delivery of instructional methods. Certain participants expressed their appreciation for a teacher who refrains from providing excessive guidance and instead focuses on fostering intellectual autonomy. Due to the implementation of this strategic approach, they achieved success in their respective professional domains. Additional participants also praise in which mentors interact with them. As per KII09, "*I encountered my teachers who were highly skilled and knowledgeable. Outside of the classroom, we engage in social interactions with our mentors and even exchange humorous remarks. However, when they are inside the classroom, they maintain a high level of strictness*."

According to the participants, collaborative learning has been identified as a contributing factor to student success. In the context of collaborative learning, ITE students exhibit a mentor-like attitude towards their peers. KII08 states that in addition to the internet and professors, her friends serve as her supplementary learning resources. According to KII05, " *There are instances where, during programming assignments, we help each other solve the problem*." Computing students consider that participating in study groups enhances their academic experience [21].

The final classification under the domain of student persistence pertains to experience. The majority of participants possess previous work experience in IT-related occupations. The computational skills of certain participants, including KII02, KII03, KII04, KII09, and FGD2P6, were further increased as a result of their engagement in employment due to financial constraints.

Institutional Commitment

The subject of institutional commitment has been identified as a significant factor determining the success of ITE students. This study delineates institutional commitment by identifying institutional policies and academic support as the defining categories. A total of 35 narratives were collected, which collectively represent the perspectives of the participants about institutional commitment. Within the framework of institutional policies, participants emphasized the significance of curriculum design in facilitating their progression toward program completion. The individuals expressed concerns with the policies integrated into the curriculum design, which impede their ability to complete the program within the designated timeframe. As per FGD2P6, "*so many pre-requisites led to too many tutorial classes. The problem is that when you are admitted to the second semester, for sure, you will be delayed because of off-semester courses*." KII01 supported this by stating, "*Maybe it's the pre-requisite because it is too strict. I failed in Math 17, so I was not able to enroll in CSC 101 in the following semester*." Notwithstanding the difficulties they had in the pre-requisite and off-semester courses, the participants also commended the rewards and recognition system implemented by the institution. Financially disadvantaged students eagerly anticipate the institution's awards system, which grants them the opportunity to become scholars with financial benefits or to be exempt from tuition payments. KII07 states *"Yes, it was one of my motivational factors during my stay. I might lose my scholarship. In the recognition system, it tends to make me perform well, especially during crème de la crème*."

Regarding academic support, the participants concur on the need to have sufficient online learning materials, technology accessibility, and utilization of laboratory facilities. ITE programs require a significant amount of equipment in addition to being dynamic courses. The inclusion of supplementary resources sourced from internet platforms plays a crucial role in enhancing the educational experience for students. ITE students respond well to having adequate access to technology and laboratory facilities.

The achievement of students should be regarded as a multifaceted undertaking that has an impact on both students and educational institutions. Moreover, it is crucial to acknowledge that the achievement of students does not solely result in financial benefits for educational institutions and students but can also involve the process of institutional change. Institutional commitment to students is the primary principle of effective retention strategies that can ensure student success [13].

Values

The participants' narratives revealed a value formation theme consisting of three distinct categories: perseverance, self-fulfillment, and confidence. In the FGD and KII, a total of 24 statements were gathered from the participants. The process of value formation plays a crucial role in facilitating students' acquisition of fundamental knowledge and skills in the field of information technology. It also contributes to the development of information awareness, fosters the cultivation of computational thinking, enhances digital learning and innovation capacities, and establishes the appropriate values for an information society [22].

Within the narratives, a total of 12 assertions derived from the conversations and interviews indicate that the participants possess an immense determination to complete their program. One of the participants, identified as FGD2P5, stated "*I was in my third year of BS Social Work at the time when I talked to my mom about my plan to shift to BS Information Technology. She discouraged me, telling me that I would lose my scholarship and my good grades. In the end, she agreed that's why I was able to shift to BSIT and start all over again*." According to FGD1P3, *"I continued with BS Computer Science even though it took me six years before I graduated." I did not shift or transfer to another program." I did not shift or transfer to another program*." One of the factors that motivate students to pursue the curriculum is the perception that the IT business offers promising job prospects. According to KII01, "*my mind is set on IT since I know that in cases of future jobs, IT is endless, and I realized that when I graduated and landed on a job related to IT, Every organization needs IT." Every organization needs IT*."

Self-fulfillment is another value that is shared by the participants. According to the participants, individuals experience satisfaction and fulfillment when they derive satisfaction from their profession and contribute to the development of their communities. It assures regarding the designated tasks. Participants believe that academic success is attained when individuals experience a sense of contentment and satisfaction.

CONCLUSION AND RECOMMENDATION

Attaining success in one's area of specialization is a key academic objective for every student pursuing higher education. The notion of student success covers not alone the attainment of academic objectives, but also the pursuit of personal satisfaction and the generation of a constructive influence on society. Prioritizing holistic student development is crucial for educational institutions to cultivate a feeling of purpose and well-being among their students. This study identified four major themes that played a crucial role in the achievement of students in completing information technology education programs. In the context of ITE education, positive feedback and strong encouragement from their friends and family. External influence enables a student to make informed decisions and cultivate social engagement with others. Furthermore, they tend to persevere during their admission into the program. This objective can be accomplished by fostering effective study habits and developing time management abilities. Enhancing the academic performance and growth of an ITE student can be achieved through the development of computing skills, such as proficiency in English, mathematical and spatial abilities, as well as programming capabilities. The provision of both intellectual and emotional support from mentors plays a crucial role in assisting ITE students in effectively managing the many challenges associated with the program. Peer support fosters collaborative learning among learners, thereby facilitating both intellectual and personal growth. Possessing work experience in the field of information technology enables the learner to gain exposure to the industry they are interested in pursuing.

Furthermore, the institution's dedication to its policies and academic support is essential for guaranteeing the success of ITE students. This commitment is demonstrated by the provision of up-to-date relevant curriculum, as well as opportunities for the practical application of knowledge.

The significance of value formation among ITE students cannot be overstated, as it plays a crucial role in forming their character and values, hence cultivating a sense of responsibility and ethical conduct in their future professional endeavors. To ensure the success of ITE students in their chosen sector, it is crucial to adopt a comprehensive approach that integrates external impact, students' determination, institutional commitment, and value formation.

The study's highlighted themes emphasize the necessity of adopting a holistic approach to student development that extends beyond mere academic accomplishments. Educational institutions can enhance their ability to facilitate students' attainment of their maximum capabilities by prioritizing personal development and overall welfare. In the end, establishing a nurturing atmosphere that prioritizes comprehensive growth will result in graduates who are more satisfied and accomplished.

This research was limited to a certain group of participants from the Marawi Campus of MSU. To enhance our understanding of the issue to student achievement among ITE graduates, it is recommended to incorporate a broader sample size encompassing diverse educational institutions in the next research endeavors. Moreover, the inclusion of viewpoints from employers and industry experts could yield significant insights into the requisite abilities and attributes essential for achieving success in the professional domain.

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