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Professional Track Technology Postgraduate Education: A Tracer Study

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Professional Track Technology Postgraduate Education: A Tracer Study

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ABSTRACT

The Graduate Education programs at the schools are vital for the future workplace. The fact that graduates can overcome obstacles and complete the program requirements fills them with privilege, gratitude, pride, and happiness. An established tracer's research developed to determine students' current conditions, even though Commission on Higher Education (CHED) compels Higher Education Institutions (HEIs) to monitor students' career pathways and whereabouts. Fifty-two respondents participated in the feedback process using the snowball and quota sampling approaches, and the questionnaire completed validity and reliability testing. Also, the targeted demographics are meant to generate results and act as the cornerstone for ideas or cooperative solutions.

Keywords: Graduate career pathways, CIT Postgraduate programs. Master of Industrial Technology, Doctor of Industrial Technology, Iloilo Science and Technology University-College of Industrial Technology, Placement and Graduateness of the CIT postgraduate students

1. INTRODUCTION

The Iloilo Science and Technology University (ISAT U) Quality Policy Handbook mentions the capability of tracking an entity's past, present, or location utilising recorded identification (2018). This policy determines if a service or activity complies with the established norms, and an investigation is made. Further research was done to clarify the importance of tracer studies in predicting the outcomes of its graduates from a specific program.

Higher Education Institutions (HEIs) have conducted several tracer studies to follow, monitor, ascertain, and evaluate the whereabouts of their graduates, according to Schomburg (2003; 2016), known as the father of tracer studies. A tracer study is an effective tool to determine the outcome of the graduates from educational institutions conducted after receiving their diplomas or finishing their training. Many subjects covered by a tracer study, Cohen (2004); Hedges and Valentine (2019), still common ones include inquiries regarding academic progress, the transition from school to work, admission into the workforce, career path, application of learned competencies and abilities, current employment, and connections to the educational institution.

A tracer study is a technique that intended to track graduates of an academic institution to provide a feedback mechanism for the graduates and their alma mater, according to Verona (2011), Rojas & Rojas (2016), Malahay & Saing (2018). This technique demonstrates how the curriculum and instruction standards that universities and colleges must follow shape the calibre of their graduates.

According to Nivera, Toledo, Sualibio, Boral, and Asuncion (2015), feedback from the established tool is essential information for curricular adjustments. Gines (2014) emphasised that monitoring graduates' movements and career paths are thought to be a potent strategy. According to Victoriano, Posadas, Migallos, Reyes, Campugan & Salas (2022), the outcomes of this tracer study may serve as a guide for upgrading or strengthening the curriculum. Moreover, the data from this tracer research can determine performance metrics for the departments.

In order to assess graduates acquired and developing abilities, competencies, postgraduate employment position, and employer satisfaction with the skills and competencies the graduates' earned from the program, Souphanthong, Syhavong, Phasurthxay, Khounmany, Souvanna, Sykhamla, Thongphasom, Jaradrawiwat, & Bumrerraj (2022) recommended a tracer study of graduates. The studies described above form the basis of this study, which tracks the graduates' career paths and whereabouts. Also, to guarantee the graduate's employment in the target market following the program's goals.

2. LITERATURE REVIEW

2.1. College of Industrial Technology

The College of Industrial Technology (CIT) is one of the schools within the Iloilo Science and Technology University (ISAT U), which offers top-notch graduate technology programs to students nationwide, not just in Western Visayas. This college created specialised technologists for the public and private sectors. Nevertheless,

its graduate program provided advanced instruction in both academia and industry. The graduates are expected to handle operational, middle, and top-level management in their new positions.

2.2. Graduate Programs

The cornerstone of the CIT graduate education program is the Commission on Higher Education (CHED) Memorandum Order number 15 series of 2019 Policies and Guidelines for Graduate Education. As part of an outcomes-based quality assurance system, in line with the Philippine Qualifications Framework (PQF) and by Referendum No. 1, this Memo, as per the relevant provisions of the Republic Act (R.A.) No. 7722, often known as the "Higher Education Act of 1994." Dated December 19, 2019, R070-2019.

The CHED established the Task Force on Graduate Education Reform (TFGER) in 2013 to evaluate the nation's state graduate programs. The TFGER suggested policy alternatives and an action plan to implement graduate programs. Fostering a culture of research and innovation in graduate programs is one of the necessary reforms. Therefore, an updated set of Policies, Standards, and Guidelines (PSG) governing graduate programs is required.

On the same Memo, the following were the role of the graduate programs: (1) achieve a clear According to the same Memo, the graduate programs' roles were to (1) achieve a clear progression beyond primary education and baccalaureate/undergraduate education by putting an emphasis on cutting-edge, integrative, and interrogative teaching and learning contents and methods and higher competencies in knowledge production (research), knowledge sharing and exchange (teaching), and knowledge application and utilisation (commercialisation); and (2) produce advanced competencies that will help students succeed in their careers.

2.3. The Curriculum

The Higher Education Institutions (HEIs) providing the graduate programs shall strengthen the curricula by including strategic learning and teaching competencies essential to current global, regional, and national economic, political, and social growth. While exercising their right to academic freedom, HEIs must adhere to the basic curricular requirements, aligning with learning standards or Outcomes-Based Education (OBE). However, they can innovate and improve their course offerings.

Moreover, emphasis on interrogative and integrative strategies is encouraged. In light of CIT's substantial contribution to education and the justification for OBE's use with the PQF based on R.A. The effectiveness of traditional and unconventional teaching-learning delivery and management systems is due to this acknowledgement. It shall be a component of the overall delivery system of graduate programs, according to Executive Order 10968.

2.4. Program Levels, Outcomes, and Tracks

2.4.1. Master's Level

Programs under the Master's level are designed to provide students with advanced academic and professional knowledge, skills, and competencies, leading to a second degree higher than the bachelors. They contain a substantial research component. These programs are theoretically based but may also include practical components and are informed by state-of-art research and best professional practice (Philippine Statistics Authority, 2018; Philippine Standard Classification of Education, 2017).

Master's programs align with Level 7 of the PQF regarding outcome or competency. The PQF Level 7 descriptors require the following of Master's degree program graduates: (1) advanced knowledge and skills in a focused, interdisciplinary, or multidisciplinary field of study for professional practice; (2) self-directed research; (3) lifelong learning with a high substantial degree and interdependence; and (4) application of the skills as mentioned earlier in research.

The Master's degree is on a professional track-non-thesis. It is a master's-level professional track with the primary objective of putting knowledge into professional practice. Master's degrees are either terminal or designed to be prerequisites for professional doctorate programs. A professional master's degree program must have at least 30 units of coursework, at least three of which must be designated as capstone courses or practice-based projects. These units must be advanced studies in professional or vocational subjects.

An individual student's academic or learning experience is concluded by a capstone project. It gives the student a chance to demonstrate the knowledge and abilities they have acquired throughout graduate school. Highlight the part of a protracted investigation that results in a final product, presentation, or performance. A typical form is when a student is required to select a topic or an issue that interests them, conduct research on the topics, and then produce a final output demonstrating their learning, such as an essay, case study, research paper, short film, or multimedia presentation. For grading and evaluation, the student presents the capstone project to professionals.

2.4.2. Doctorate Level

The doctoral level is the highest academic degree available in any topic or field of study, making it a terminal degree (www.collinsdictionary.com, 2018). Programs at this level focus on advanced study and original research, leading to a research qualification (Philippine Statistics Authority, 2018; Philippine Standard Classification of Education, 2017). The Level 8 PQF is connected with doctoral programs. The following would be expected of doctoral degree program graduates under PQF Level 8 descriptors: (1) demonstration of highly advanced systematic knowledge and skills in the highly specialised and complex interdisciplinary or multidisciplinary field of learning; (2) utilisation of complex research/creative work or professional practice and the advancement of learning with complete independence in individual work and teams of independent researchers.

The Doctoral Degree (Professional Track) denotes a skill level comparable to that necessary for the PhD in a professional field's subject matter and methods. While the research for the professional doctorate may push the limits of knowledge in the discipline, its main focus is on exceptional practical performance. Doctor of Education and Doctor of Public Administration programs are two examples of this type of doctoral program.

Prospective students must have professional experience before admitting to the program. Thus, candidates must present evidence of significant actual professional job experience. The CHED Technical Panels or HEIs may specify the minimum years of professional experience required for each subject—the professional doctorate program requires at least twenty-four coursework units and twelve practice-based dissertations.

The student must pass a comprehensive examination. The student must also have finished a practice-based research project for their final product. A publicly defended dissertation is required. The HEI notifies its academic community via email or publishing on its HEI website and social media about the date of the defence. Practice-based research is an original study that seeks to learn something new in part through experience and the results of that practice. For a doctoral dissertation, creative outputs, including designs, music, digital media, performances, and exhibitions, can be used to support the claim of uniqueness and contribution to expanding knowledge.

The researchers decided to design this study to profile the job pathways and environs after the graduates obtained their university certificates based on the previous literature reviews. The helpful information acquired would be utilised to the advantage of the university's stakeholders and the industry for students' and graduates' fitness and Graduateness to contribute to developing the nation's economy.

3. Objectives of the Study

The purpose of this study was to trace the professional pathways and placement of CIT postgraduates from 2016 to 2021.

It specifically aimed to determine the following:

1. identify the profile of the CIT postgraduates' program from 2016 to 2021 in terms of age, sex, civil status, place of residence, nature of the employer, category of employer, eligibility, and career after graduation;
2. the degree of their satisfaction towards the degree programs; and
3. seek suggestions for enhancing the university's postgraduate curriculum.

3.1. Conceptual Paradigm of the Study

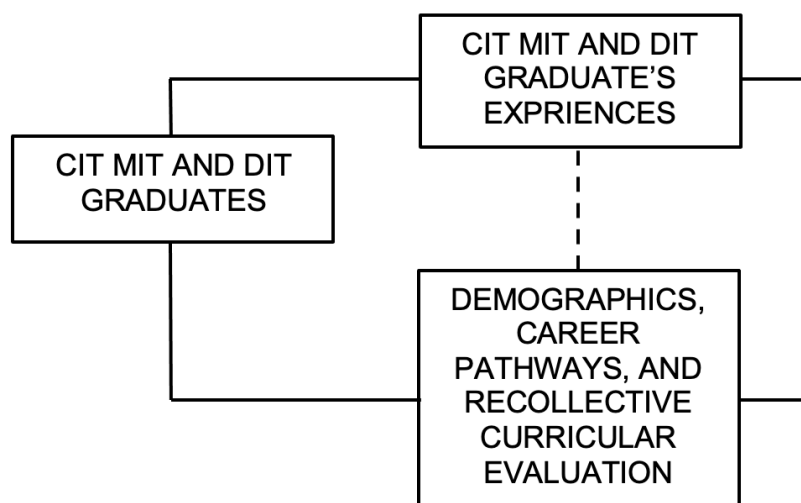


Figure 1: The Conceptual Paradigm of the Study.

Figure 1 shows the conceptual framework for the study, which shows how professional experiences gained by graduates of the MIT and DIT programs prepare them to become middle and top-level managers in their workplaces with the ability to conduct technology research, acquire a variety of technological skills, and apply a wide range of technologies to advance the country. The objective of the graduate program is to produce graduates who are dynamic in academia and industry. The determined demographics based on the programs, including sex, age, civil status, place of residence, type of employer, employer category, eligibility, career after graduation with their perception of the university, and the retrospective evaluation of the two programs, are also considered expected outputs. These details are required for the program's course offerings to be improved and developed in the future.

4. METHODOLOGY

4.1. Research Design

This study used a retrospective evaluation and a descriptive survey of the established demographics, including graduates' perceptions after they graduated from the program. McCombes (2022) described it as a population, circumstance, or phenomenon that must be correctly and methodically described through descriptive study. Questions about what, where, when, and how can be answered, but those about why cannot. Various research methods and a descriptive research strategy can examine one or more variables. In contrast to experimental research, the researcher does not change or otherwise alter the variables; instead, they are only observed and measured. According to Schomburg & Teichler (2011), a tracer study is one of the best ways to ascertain the program's results. Academic institutions can tailor their curricula to meet the needs of graduating employers using the established data.

4.2. Respondents and Sampling Plan

The researchers used both qualitative and quantitative analyses on two different initiatives. By providing links to grads' emails and group conversations, the researchers were compelled to use Google Forms to collect data from the respondents. In addition, snowball sampling was used by the researchers to identify 33 participants from MIT and 19 participants from DIT, for a total of 52. According to Etikan, Alkassim, and Abubakar (2016), chain-referral sampling or snowball sampling of a hidden population starts with a convenience sample of the initial subject because the people would cease to be hidden if a random sample could be taken. The poll used information from the Registrar's office via the graduation memento program. Graduates from 2016 to 2021 who responded via email, phone interviews, and Google forms are the target participants.

4.3. Instrument and Data Gathering Procedure

For the investigation, a modified instrument made by the institution was used. There were some items left out that were particular to each program. New components have also been added to support the required data. Alumni responses to questions on the training they received while enrolled in the program were used to collect qualitative and quantitative data. Demographic questions concerning eligibility, employment after graduation, and satisfaction with the degree programs are also asked, in addition to questions about age, sex, civil status, place of residence, and employer type and category.

Also, comments to improve the offerings for improving CIT's graduate education programs are welcome from graduates regarding their satisfaction with finishing the programs. Furthermore, the questionnaire has yet to undergo validity and reliability testing because the established university's questionnaire for tracer studies of the graduates was utilised, and no validity and reliability testing was employed. After the approval to conduct the study, the group used different online platforms to deploy questionnaires.

When the pandemic hit the world, the biggest problem in coming up with the desired responses from the target respondents. Face-to-face contact is prohibited. Alternatives were considered, like

With the utilisation of google Forms, researchers uploaded the survey to the Google application. Links were also sent to the participants. Interviews and email are two other methods. The researchers so gathered 52 participants. The target respondents' desire to engage in the survey poses the biggest obstacle to data collection. Even though it is an online form, the answer-giving discretion may be in jeopardy due to scheduling conflicts and other work-related issues. Even with these issues, the team gathered enough data for data treatment and analysis. The information acquired will be the cornerstone of the university's efforts to strive for excellence and exemplary graduate program graduates.

4.4. Data Analysis

Statistical Package for Social Science (SPSS) Version 22 and M.S. Excel were used to process the data in a computerised manner. For statistical operations, the researchers devised a tally method for each item. The researchers utilised the frequency count and percentage to analyse the findings. The researchers utilised frequency counts and rates to establish the participants' demographic. However, solicited interviews were

utilised for the degree of satisfaction towards the degree program. At the .05 level of significance, each hypothesis was tested.

5. RESULTS AND DISCUSSIONS

Just 52 graduates from the 2016–2021 academic year participated in the tracer study due to the participant's poor answers. The epidemic impacts both the Google Forms method and face-to-face questionnaire retrieval. Links to their group chats or emails were delivered, but participants frequently ignored the notification—the time it takes to complete the questionnaire and respond to the critical questions. Although everyone who participated responded online, some missed one or more questions, mainly in the open-ended questions and items that asked for helpful information on improving the curricula for advanced education.

5.1. Participants' Demographics

Table 1: Participant's Demographics.

Participant Information		Total (N=52)	Percentage
Program			
	MIT	33	63%
	DIT	19	37%
Sex			
	Male	41	78%
	Female	11	22%
Age			
	70	1	2%
	60	7	13%
	50	18	35%
	40	15	29%
	30	11	21%
Civil Status			
	Single	12	23%
	Married	38	73%
	Widowed	2	4%
Place of Residence			
	Iloilo	14	27%
	Non-Iloilo	38	73%
Nature of Employment			
	Public	45	87%
	Private	7	13%
Category of Employment			
	Academe	50	96%
	Industry	2	4%
Eligibility			
	PRC	21	40%
	CSE	2	4%
	TESDA	25	48%
	None	4	8%
Career After Graduated from the Program			
	Top-Level Management	4	8%
	Middle-Level Management	5	10%
	Operation Level	43	82%

According to Table 1, most of the program's graduates were male, between the ages of 40 and 50, married, and from areas outside Iloilo City. Most of them, in terms of their type of employment, came from the academic world and worked in the public sector. Although the industry's meagre results show that graduates did not work in the sector, owning their firm significantly boosted the latter's success.

It is clear because the curriculum is set up to help students develop in their technological education. These graduates worked in operational-level management in their respective workplaces as qualified TESDA national certificate holders and licensed professional teachers.

The outcome suggests that enrolment and graduation patterns indicate that more men enrolled in and completed the programs. The data suggests that the program is not for men. Still, women were also urged to enrol because of the program's relevance to the workplace and fit for the technology sector. The program's feeder, the Bachelor of Industrial Technology, attracted students and produced graduates. This trend means that undergraduate knowledge and abilities are vertically planned to continue. Further, sharpen them in the graduate program, making them highly specialised professionals as leaders, managers, and professors in their respective fields. These bends thus demonstrate the graduate's Graduateness and fitness in the selected area of specialisation.

A tracer study was unquestionably an effective instrument in the studies of Gines (2014) and Nivera, Toledo, Sualibio, Boral, and Asuncion (2015) for documenting occupational characteristics, the transition to employment, and the degree of satisfaction. This strategy aims to identify and address the existing curriculum's strengths and shortcomings and its sufficiency, quality, and relevance in connection to the competencies required in the market, both locally and globally.

5.2. The Degree of Satisfaction

Regarding the degree of satisfaction, the following responses were gathered through interviews. To wit:

"The knowledge and skills learned DIT program made me who I am. I am happy and satisfied because I was promoted to a higher rank and held top-level management. I owe all of these to the CIT DIT graduate program."

"As a graduate of the MIT program, I am privileged and honoured, aside from promotion and new assignments in the job. I could apply my learnings to my students and my research activities, especially in research. My present developmental research is going well because of the inputs from my subjects in Technological Research and Independent Study."

"The strong promotion of the research and development as integral in the program has captured the student's mindset to develop patentable with potential value gadgets, devices, and software for commercialisation to contribute to the country's national development and bringing the University's research ethos: To create, protect, share, and transfer of knowledge and technology."

"The high profile of my firm, influencing my clients and partners, was made possible by my doctorate degree obtained from MIT and DIT programs. I also valued the management skills I had learned since they were instrumental in my business, particularly in managing and fostering positive relationships with my employees, clients, and partners. Also, I fully utilized my research on hydrogen and the dredging machine in both programs, which helped my firm immensely."

"Passing the program gave me a high sense in recommending it to my colleagues, friends, and relatives to pursue their postgraduate education in the CIT graduate program due to quality and relevant education that teaches every student to become a highly independent learner that can work harmoniously towards teammates with the highly specialised or interdisciplinary or multidisciplinary field."

To sum up all their responses, the majority of the participants from the academe who responded through interviews and questionnaires that they were very proud, grateful, and privileged that they were graduates of the CIT postgraduate program. They could use their knowledge and learn from the program, especially in their assignments. Others mentioned that credentials they acquired were utilised in their promotion and were promoted. Also, they were optimistic about recommending to their relatives, friends, co-workers, and colleagues. They believed that the university is genuinely accurate to its vision, mission, goal, and objective to becoming the "Leading University in Southeast Asia in 2023; those competencies were advantageous were able to use their acquired knowledge from the CIT graduate programs, particularly in the middle and top-level management.

5.3. Curricular Reforms

To further improve the CIT postgraduate program, interviews the students to give feedback to advance the contents and outcomes of the graduate school offerings. To wit:

"Invest in state-of-the-art hardware, industry-based software, and faculty development to ensure the quality of teaching-learning processes and adapt faculty skills to modern technology to demonstrate highly advanced systematic knowledge and skills in highly specialised or complex interdisciplinary or multidisciplinary fields of learning."

"Intensify the course offerings to fully utilise students' capacity in developing complicated research/creative work and professional practice or the progression of learning with complete independence in individual work or teams of independent researchers."

"Ask industry stakeholders, recent graduates, and business partners to assess the curriculum updates for this group to determine how to develop knowledge and abilities in a specific, interdisciplinary, or transdisciplinary field of study for professional practice."

“Integrate business competencies in the program to guide those students and graduates to start their own business if not fit to work or to teach. The essentials of fundamentals and advanced business management, including financial and funding, may be included in the curriculum to fully commercialise graduate’s technologies, making them technopreneurs of their respective field of specialisation.”

“As stated by the CHED in the 2017 Philippine Standard Classification of Education, “Align the program outcomes or competency in the PQF outcome or competency.”

These crucial contributions from the alumni served as the foundation for improving the course syllabus’s content to give the best possible postgraduate technology education to those who will be enrolling shortly. ICARE, which stands for Integrity, Commitment, Accountability, Responsiveness, and Excellence and embodies the university’s fundamental values, accurately reflects ISAT University’s commitment to producing graduates who will be leaders, entrepreneurs, and technologists in their respective fields.

6. CONCLUSIONS AND RECOMMENDATIONS

This research, which followed the careers and locations of CIT-MIT and DIT graduates from 2016 through 2021, produced information that can be used to improve courses. With 33 individuals from MIT and 19 from DIT programs, a novel sampling strategy was developed using the snowball method. The samples consisted of male MIT program graduates, married, employed full-time by a public academic employer, possessing teaching credentials, and in charge of operational-level management. Most were also content and delighted that their current jobs allowed them to use the skills they had learned. As a result of their success in advancing their rank, they enthusiastically endorse the program to their friends and family, citing ISAT University as one of the best universities in the nation for advanced technological programs.

The academic, industry, and business sectors are also involved in the retrospective assessment of the tools, resources, and software utilised in the classroom. The graduate students could thus see how the theories and practices were applied. In the 2019 Policy and Guidelines for Graduate Education by the CHED, Memorandum Order number 15 series, the competencies are aligned to the PQF Levels 7 and 8. As a result, MIT and DIT Programs have guaranteed that students who enrol in and graduate from their programs will have acquired highly advanced systematic knowledge and skills in highly specialised and complex interdisciplinary or multidisciplinary fields of study, as well as the ability to use difficult research/creative work or professional practice to advance their education completely independently in their career or teams of independent researchers.

These outcomes show unequivocally that postgraduate program graduates hired to work full-time at their station gained objectivity regarding professional and job progress. By producing multidisciplinary graduates across their fields of specialisation who are experts in technology and produce high-calibre research outputs, these graduates will carry the ISAT U’s flag of gold and blue, demonstrating that the university is, in fact, true to its vision, mission, goals, and objectives.

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