Retrospective Assessment of the MA Math Graduates Leading to Employment and Promotion

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Abstract

This study determined the retrospective assessment of the Master of Arts in Mathematics (MA Math) graduates of ISAT U from 2018 to 2020 regarding employability and promotion. The descriptive method was used. The researcher utilised a validated instrument in gathering data from the eighteen respondents. Frequency counts, and percentages were utilised as descriptive statistical tools. Data revealed that most graduates were female, married, and PRC-licensed.

Furthermore, 100% of the respondents were hired as permanent employees in the academe. The skills they acquired in the program relevant to their jobs were teaching and mathematical-logical reasoning. It was also found that communication, programming, statistics, and research were relevant skills to them. The majority found their jobs through recommendations. In conclusion, the graduates appeared to have a very high employability rate. It is recommended to continue conducting tracer studies to enhance the MA Math program.

Keywords: Assessment, MA Math Graduates, employment, promotion.

1. Introduction

Program evaluation is feasible through prospective or retrospective assessment. Also, prospective assessment plans can be included in a program design. Moreover, a retrospective assessment is performed once the program has produced outputs (Adhikari, 2022). Therefore, assessing a graduate program by conducting a tracer's study of its graduates is necessary to enhance the curriculum.

For over a decade, the Master of Arts in Mathematics (MA Math) program at Iloilo Science and Technology University (ISAT U) has been committed to providing students with a "continuing education sufficient to pursue careers in the academe, industry and government requiring mathematical skills and perspective". The program prepares the students for advanced studies in pure and applied mathematics, mathematics education, statistics or related fields. Moreover, it provides training and conducting research in mathematics.

With this observed phenomenon, the program needs a retrospective assessment to examine the employability and promotion of the said program graduates. This situation also keeps track of the relevant skills and training in demand in the industry. This study will also help in the enrichment of the curriculum.

2. Literature Review

2.1. Evaluating a Program through a Tracer Study

An orderly way of studying a programme, practise, intervention, or initiative to see how well it achieves its objectives is provided by programme evaluation. Through evaluations, programmes, and initiatives can learn what works effectively and what needs to be improved. Furthermore, it is a method of programme evaluation used after a period of programme operation (Adhikari, 2022).

"Each academic institution strives to generate graduates who are capable and well-educated and who will eventually be able to compete on a national and international level. Conducting a tracer study is one of the indicators of retrospective evaluation. A graduate tracer study is an extremely useful instrument for assessing the circumstances and performance of graduates in the workplace" (Cuadra et al., 2019).

In a tracer study, data is gathered and analysed repeatedly over time. "Tracer studies are often intended to track changes at the individual level, following a development intervention for monitoring and evaluation purposes". However, they might also converge on other units of analysis, such as communities, organisations or policies. Tracer studies are most valuable when change is intended to be long-term and noteworthy (Intrac, 2017). In addition, Romadlon and Arifin (2021) suggested that a tracer study must follow the following essential steps: preparation, implementation, analysis, and evaluation of results. Sira et al. (2022) advocated the tracer study's significance in generating early evidence highlighting the program's strengths and deficiencies, such as enhancing learning facilities to conform to the industry's standards more closely. Additionally, it gave professors the tools they needed to produce dependable, trustworthy graduates who could lead and get along well with coworkers.

Moreover, a study by Tayco et al. (2022) determined the employability of state university graduates in the Philippines. It stated that the curriculum used and competencies learned by the graduates are related to their job. Thus, the majority of the graduates are locally employed. They remain and accept the job because of the salaries and benefits they receive, the career challenge, and the relevance to the course they have taken in college.

De La Cruz and De La Cruz (2023) also noted that the outcome of the tracer study would offer a chance to evaluate the current curriculum, improve learning resources and facilities, and strengthen strong partnerships with linkages to maintain the relevance and responsiveness of the current graduate programs and curriculum. To ensure that graduates have the knowledge and skills required in the industry, a regular examination of the curriculum by academic leaders, alumni, and industry representatives is important (Albina & Sumagaysay, 2020).

According to Biscante et al.'s research results from 2019, the majority of respondents are single professionals with regular or permanent status who work for the government. The majority of responders, and the majority of teachers who passed the Licensure Examination for Teachers, were majoring in mathematics. Some respondents found their first work in less than a month, earning between $5,000 and less than $10,000 per month in their gross monthly income. Most respondents say they stay in their jobs because of the pay and benefits, and

most also say that their jobs are related to the university courses they completed. They discover that their acquired communication abilities are useful at the office.

Furthermore, a study by Cordona (2014) found that nearly all of the respondents were currently employed, had taken the "Licensure Examination for Teachers (LET)" and passed on their first attempt, found employment within six months of graduating, and were actively practising their profession by instructing in virtually all subject areas and at all educational levels. The graduates also stated that their current jobs benefited somewhat from the competency abilities the university had offered them.

2.2. Employability

Nisha & Rajasekaran (2018) explain how employability skills play a part in determining students' careers and emphasise how having these abilities can assist recent graduates advance in their careers.

Additionally, the Dearing Report on Higher Education (1997) recently underscored the value of education for employability, emphasising the necessity of developing key skills and gaining practical experience (Lees, 2002). Coopers and Lybrand (1998) also describe employability skills in four main categories: 2. Essential skills, such as communication, IT, etc., 1. Traditional intellectual talents, such as critical analysis and logical argument 3. Personal qualities such as drive and self-reliance, and 4. Knowledge of businesses and their operations (Lees, 2002). In addition, according to Weligamage (2014), colleges should determine the skill sets that best serve the future labour market and design curricula to fulfil those demands.

The employability and quality of an academic institution's graduates, according to Calma (2019), are two factors that can affect the effectiveness of the university. This ensures that graduates possess the knowledge, abilities, and morals necessary for employment in their vocations.

As a result, graduates with strong academic backgrounds have greater career prospects and a higher chance of finding employment in today's fiercely competitive global market. A graduate degree will increase one's readiness and competence for new employment opportunities (Lapena, 2023).

Additionally, descriptive research by Rueisa et al. (2020) determined the graduates' retrospective appraisal of the science education programme regarding appropriateness and relevance. Results showed that university graduates have a very high percentage of employment. The knowledge and abilities they acquired during their studies apply to their current jobs.

According to the study by Sira et al. (2018), many are currently engaged in the private sector with plans to pursue post-education, either funding their continuing education or being contented employees of their businesses. These traits are therefore seen as traits of graduates who are ready to tell their alma mater about their success stories in their separate workplaces through a tracer study.

2.3. Job Promotion

A study by Rinny (2020) attempts to evaluate and examine the effects of pay, career advancement, and job satisfaction on the performance of the teaching staff at Mercu Buana University. The findings demonstrated that compensation, career advancements, and

contentment highly impacted performance. Promotion at work has a favourable and significant impact on output.

Additionally, the study by Beihang & Yangb (2020) showed that task and contextual performance can be directly impacted by how one views promotion chances. Additionally, it was stated that rank, supervisor-subordinate relationships, and promotion justice influenced perceptions of promotion opportunities. Thus, to comprehend the mechanisms behind the impact of perceptions of promotion chances on job performance, the study constructed a conceptual framework that considered the aforementioned variables.

Additionally, Siswoyo et al. (2020) note that job promotion had a more substantial direct impact on enhancing employee job performance than training did. Promotion during the last two years increases job satisfaction, according to Kosteas (2010). Additionally, employees who think a promotion is possible in the next two years report more job satisfaction.

3. Purpose of the Study

This study attempted to determine the retrospective assessment of MA Math graduates.

Specifically, this study sought answers to the following questions:

(1) What is the demographic profile of the MA Math Graduates from 2018 to 2020 regarding gender, civil status, examinations passed, and advanced education?
(2) What are the graduates' employment status, job experiences, and promotions?
(3) What are the recommendations for improving the university's tertiary education curriculum?

4. Significance of the Study

This study may benefit the curriculum maker and administrator to revise the curriculum.

5. Methodology

5.1. Research Design

The descriptive method was employed in this study.

5.2. Participants

The respondents were based on the official list of graduates from 2018 to 2020 provided by the University Registrar's Office. There were eighteen (18) respondents.

5.3. Research Instrument

The data-gathering instrument utilised was validated and institutionalised. Based on the validated instrument, Google Forms were generated to administer the questionnaire online.

5.4. Data Gathering Procedure

A written request to conduct the study was secured from the Office of the University President. Based on the validated institutionalised instrument, Google forms were generated to administer the questionnaire online. Upon approval of the letter, the Google forms were forwarded to MA Math Graduates of 2018 to 2020.

5.5. Data Analysis

After completion, the filled-up forms were retrieved and reviewed. The data gathered was encoded. After encoding, the data were treated with statistical tools for analysis and interpretation. Frequency counts, and percentages were utilised as descriptive statistical tools.

6. Results and Discussion

The following tables utilised frequency counts and percentages to describe the findings of the survey results. The research sought to identify MA Math graduates of 2018 to 2020 from Iloilo Science and Technology University. Eighteen graduates were contacted.

As shown in Table 1, out of 18 respondents, 3 or 16.67 per cent were males, and 15 or 83.33 per cent were females. As revealed, the graduates were dominated by females. Regarding civil status, out of 18 respondents, 5 or 27.78 per cent were single, and 12 or 66.67 per cent were married. While there is, 1 or 5.56 per cent is widowed. All of the MA Math Students were PRC board passers. The study of Cordona (2014) supported the study, which revealed that almost all of the respondents had taken the "Licensure Examination for Teachers (LET)".

Table 1. "Demographic Profile of Respondents in Terms of Sex, Civil Status, and Examinations Passed"

Profile	Frequency	Percentage
Sex	3	16.67
Male		
Female	15	83.33
Civil Status		
Single	5	27.78
Married	12	66.67
Widowed	1	5.56
Examinations Passed		
PRC	18	100.00

Regarding the advanced education of the MA Math Graduates, 1 or 5.56 per cent continued on PhD. While 17 or 19.44 per cent graduated in their MA Math Program, are shown in Table 2.

Table 2. "Profile of the Graduates in Terms of Advanced Education"

Profile	**Frequency**	**Percentage**
Advanced Education		
Ph D	1	5.56
MA Math	17	94.44

Regarding employment status, Table 3 shows that 18 or 100.00 per cent of the graduates were employed as regular or permanent. The same result was found in the study of Sira (2023) in most of the postgraduate technology students were working as permanent faculty, particularly in the public entity. As to the waiting time for their first paid employment, it is also shown that 1 or 5.56 of the respondents took 1-6 months, the same number as those who took 7-11 months. 9, or 50.00 per cent, took 1-2 years; 7 or 38.89 per cent took more than two years. For employment, 18 or 100.00 per cent of the graduates are under the teaching/academe. The result is supported by the study conducted by Cordona (2014) revealed that almost all of the respondents are presently employed and acquired a job within six months after graduation.

Table 3. "Profile of the Graduates in Terms of Employment Status, Waiting Time for their First Paid Job, and Nature of Employment"

Employment Information	Frequency	Percentage
Employment Status		
Regular/Permanent	18	100.00
Total	18	100.00
Waiting Time for their First Paid Job		
1-6 months	1	5.56
7-11 months	1	5.56
1-2 years	9	50.00
More than 2 years	7	38.89
Total	18	100.00
Nature of Employment		
Teaching/Academe	18	100.00

Table 4 shows the frequency distribution of the skills acquired by the MA Math graduates. The graduates obtained specific skills such as teaching, analytical with programming, mathematical/logical/reasoning, statistics and research, and other skills (computer literacy, communication, etc.) during and after taking the MA Math Program. These skills were beneficial in their jobs. The study's results were supported by the study of Biscante et al. (2019) revealed that they find their learned communication skills beneficial at work. In addition, it is also supported by the study of Cordona (2014) revealed that the graduates also claimed that the competency skills provided by the university were helpful to a certain extent in their current work.

Table 4. "Frequency Distribution in Terms of Skills Acquired by MA Math Graduates from the Program"

Skills Acquired	Frequency
Teaching Skills	7
Analytical with Programming Skills	1
Mathematical/Logical/Reasoning Skills	5
Statistics and Research Skills	1
Others (Computer Literacy, Communication skills, etc.)	1

Table 5 presents the ways and means of the graduates in finding their first job. 9 or 50.00 per cent of the graduates indicated that they found their job through recommendations. 4, or 22.22 per cent, were informed by friends—3 or 16.67 as a walk-in application and 1 or 5.56 through a school job placement offer.

Table 5. "Profile of the Graduates in Terms of Ways or Means of Finding their First Job"

Ways or Means of Finding Their First Job	Frequency	Percentage
Advertisement	0	0.00
Information from friends	4	22.22
Recommended by someone	9	50.00
Walk-in applicant	3	16.67
School job placement officer	1	5.56
Others	0	0.00

Table 6 presents the job promotion of MA Math graduates. 13, or 72.22%, got promoted, and 5 or 27.78%, remained in their current rank.

Table 6. "Job Promotion of MA Math Graduates"

Job Promotion	Frequency	Percentage
Teacher I to Teacher II	4	22.22
Teacher I to Teacher III	7	38.88
Teacher 2 to Master Teacher 1	1	5.56
Teacher 3 to Master Teacher 2	1	5.56
Teacher 1 (no promotion)	5	27.78
Total	18	100.00

7. Conclusions and Recommendations

Based on the data gathered, the profile of the graduates was determined as follows:

Regarding gender, most of the graduates were female, and majority were married. Only one government examination was taken by the graduates, the PRC, and all passed. For the profile of the respondents in their advanced studies, most of them finished their MA Math degree, and one is currently pursuing a doctoral degree. Regarding employment status, 100% of the respondents were hired as permanent employees in the academe. Most respondents waited 1-2 years for their first paid job. The skills acquired in their course that they found relevant in their present jobs were skills in teaching, which ranked first, followed by mathematical/logical/reasoning skills.

Similarly, skills in analytical with programming, statistics and research, and communication skills were also found relevant and valuable by the MA Math graduates. Regarding ways or means undertaken by the respondents in finding their job, the majority of them found their jobs through a recommendation of someone. Others found their job through information from friends and the school job placement officer. As to job promotion, the majority of the graduates got promoted.

Based on the findings mentioned above and conclusions, the following are the recommendations:

1. The administration should continue conducting tracer studies and develop a record to be able to have a regular update of the MA Math graduates;

2. The faculty may reinforce teaching methods and activities that would further improve the mathematical skills of the students to promote their critical thinking;
3. The administration should conduct regular curriculum reviews to enhance the MA Math program to improve employability and job promotion.

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