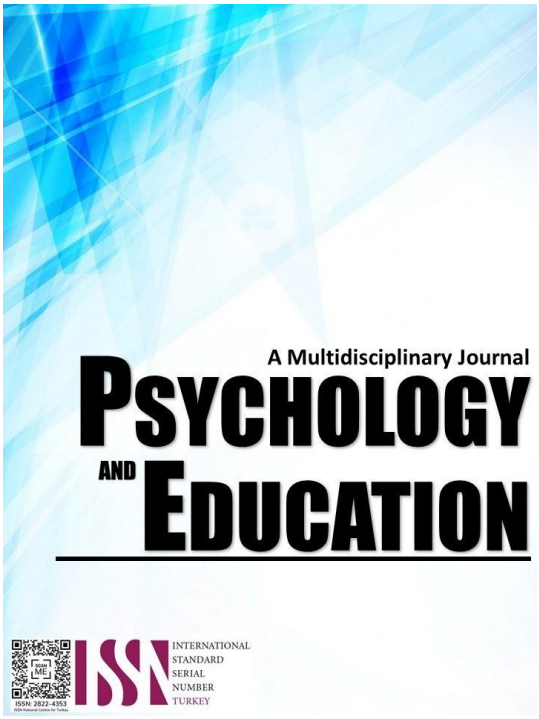
TRACER STUDY OF GRADUATES IN MASTER OF ARTS IN TEACHING MATHEMATICS OF SULTAN KUDARAT STATE UNIVERSITY GRADUATE SCHOOL 2019-2023



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Research Article

Tracer Study of Graduates in Master of Arts in Teaching Mathematics of Sultan Kudarat State University Graduate School 2019-2023

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Abstract

Higher education institutions play a pivotal role in cultivating graduates who are not only job-ready but also equipped with the skills, knowledge, and competencies essential for success in the 21st century. A tracer study was conducted to determine the employability and career outcomes of graduates from the Master of Arts in Teaching Mathematics (MAT-Mathematics) program. This study aimed to evaluate the relevance of the skills and knowledge gained through the program in relation to graduates' current employment. Utilizing a descriptive-correlational research design, data were gathered from 23 program graduates from the cohorts of 2019 to 2023. The findings indicate that the majority of MAT-Mathematics graduates are employed in teaching positions within the Department of Education, with many achieving promotional advancements. Notably, most graduates experienced significant career progression, advancing by at least two steps due to the competencies acquired through the program. Furthermore, statistical analysis revealed a significant difference in employment status before and after completing the MAT-Mathematics program, with a large and strong correlation between the degree earned and subsequent employment status. These results underscore the positive impact of the MAT-Mathematics program on career advancement within educational settings.

Keywords*: career advancement, employability, higher education, tracer study, mat-mathematics*

Introduction

In addressing the complex challenges of the 21st century, higher education has emerged as a crucial factor in facilitating transformation. Prudente (2024) found that the increased cognitive demands in the K–12 curriculum, coupled with inadequate teacher pedagogical skills for 21st-century competencies, directly influence student learning outcomes. Educators need to incorporate 21st-century skills such as problem-solving, information literacy, and critical thinking across all disciplines, yet this is occurring without sufficient professional development or resources. Thus, higher education is vital for addressing the multifaceted challenges of this century and adapting to changes. It serves an essential role in development through functions such as teaching, research, outreach, and tracking graduates in graduate school.

Tracer studies have become a valuable tool in educational research, particularly for analyzing the outcomes and pathways of graduates after completing their degrees. These studies effectively document employment characteristics, transitions to work, and satisfaction levels (Gines, 2014). They serve as a critical feedback system for educational institutions to assess the effectiveness of their programs, align curricula with industry requirements, and ensure that graduates possess the necessary skills and competencies for employment. Tracer studies in higher education provide insights into graduates' employability, career advancement, and job satisfaction, playing a key role in shaping future educational policy and enhancing academic programs.

Sultan Kudarat State University (SKSU) is dedicated to delivering quality education across various disciplines. The Graduate School plays a significant role in producing highly qualified professionals, particularly in mathematics, by equipping them with the knowledge and skills necessary for success in education. Graduates are encouraged to develop personal skills and attitudes that prepare them for the workforce, ensuring that the university's curricular programs align with industry needs and the growing demand for qualified personnel (Cañizares, 2015).

However, the educational system within the Department of Education is facing a crisis. Global standardized assessment standings, such as those from the Programme for International Student Assessment and the Trends in International Mathematics and Science Study, reveal concerning trends (Yee, 2024). Anecdotal evidence suggests that secondary school teachers observe that many Grade 9 and 10 students struggle with basic reading comprehension and mathematics.

Furthermore, findings from the Second Congressional Commission on Education (EDCOM 2), presented in an August 29, 2024 hearing of the House Basic Education Committee, revealed that 51% of Science teachers do not specialize in the fields they studied in college. This aligns with a 2016 World Bank report highlighting the inadequate content knowledge of high school teachers, as seen when Grade 10 teachers scored below 50% in both English and Math. Consequently, Yee (2024) emphasized the need for a mechanism to align the specializations required in public schools with those offered in colleges and universities, which falls under the purview of the Commission on Higher Education.

Graduate programs, particularly those in the field of Master of Arts in Teaching (MAT) – Mathematics, must undergo periodic evaluations to assess curriculum effectiveness and the employment outcomes of graduates. This evaluation is vital for accreditation and quality assurance, relying on data-driven approaches to measure employment status and program performance. Continuous tracking of graduates is essential for meeting the required Performance Indicators (PIs) in the Major Final Outputs (MFOs) for advanced

education.

From 2019 to 2023, there has been a lack of available data on the employment status of graduates from the university's MAT-Mathematics program. To address this gap, this study aims to: (1) determine the socio-demographic profile of graduates; (2) explore their motivations for enrolling in and completing graduate studies; (3) analyze their employment profiles; (4) assess changes in their permanent job positions before and after completing the MAT-Mathematics program; (5) evaluate the relevance of key factors to the program; (6) examine significant differences in employment status before and after graduation; and (7) investigate the relationship between earned degrees and employment outcomes. By assessing these aspects, the study provides valuable insights into the program's effectiveness in preparing graduates for the evolving demands of the education sector. The findings will serve as a basis for curricular improvements, ensuring that the MAT-Mathematics program remains responsive to industry needs and equips graduates with the necessary skills for career advancement.

Research Questions

This study aimed to determine the employment statuses of the graduates of the MAT-Mathematics program of Sultan Kudarat State University. It sought to answer the following research questions:

1. What is the socio-demographic profile of Graduates in the MAT-Mathematics Program in terms of:
    1.1. age;
    1.2. gender;
    1.3. civil status;
    1.4. year graduated;
    1.5. region of origin;
    1.6. place of work; and
    1.7. scholarship in completing graduate program of the respondents?
2. What are the respondents' reasons for taking and pursuing Graduate Studies?
3. What is the employment profile of the Graduates in terms of:
    3.1. employment rate;
    3.2. employment status;
    3.3. classification of occupation;
    3.4. major lines of business in their present employment;
    3.5. job level position in their present employment; and
    3.6. gross monthly earnings after completing the graduate program?
4. What is the permanent job position of the respondents before and after taking the MAT-Mathematics Graduate Program?
5. What is the relevance of the following factors to the MAT-Mathematics Graduate in terms of:
    5.1. curriculum application to the current job; and
    5.2. graduate school program?
6. Is there a significant difference in the respondents' employment status before and after taking the MAT-Mathematics program?
7. Is there a relationship between degrees earned and employment status of the graduates in the MAT-Mathematics program?

Methodology

Research Design

This research employed a descriptive-correlational design to achieve its objectives. Descriptive research is appropriate for identifying population characteristics, frequencies, trends, and categories. A survey was utilized to gather data on the respondents' socio-demographic and employment profiles, their motivations for pursuing graduate studies, the applicability of the curriculum to their current employment, and the overall significance of the graduate school program.

The correlational approach was applied to examine the relationship between the respondents' employment statuses before and after completing the MAT-Mathematics program. This method is particularly effective for investigating associations within observational data, offering valuable insights into the direction and strength of relationships between variables without implying causation (Polit & Beck, 2021).

Respondents

The respondents of this study were 23 graduates of the Master of Arts in Teaching Mathematics program at Sultan Kudarat State University Graduate School, who completed their degrees between 2019 and 2023. Specifically, the respondents included four (4) graduates from 2019, six (6) graduates each from 2020, 2021, and 2023, and one (1) graduate from 2022.

All graduates within this period were included to ensure a comprehensive and accurate assessment of their socio-demographic profiles and employment outcomes. By incorporating the entire population of graduates from the specified timeframe, the study aims to provide a detailed and reliable understanding of the program's impact on their professional careers.

Instrument

The research instrument for this study was adapted from the work of Hitalia and Protacio (2024), titled "Degree and Employment Status of Graduates of SKSU Graduate School." The instrument underwent validation to ensure its suitability for this study. Its content was aligned with the required criteria and indicators set by accreditation and other quality assurance standards. However, since the original instrument covers the entire SKSU graduate program, certain items that are not relevant to the MAT-Mathematics program were excluded by the researcher.

Procedure

Figure 1 shows the data collection procedure for this study. It utilized a systematic methodology, starting with securing official permission from the President of Sultan Kudarat State University (SKSU) to do the research within the university. Upon receiving approval, a request letter was sent to the university registrar, seeking access to relevant documents, including the contact details and academic profiles of the graduates participating in the study. A tracer survey was conducted for graduates of the MAT-Mathematics program at the SKSU Graduate School. This was done using google forms sending the link to their emails or messenger. This survey gathered information on their work status, career advancement, and other pertinent aspects.

Upon the completion and submission of the surveys, the researcher gathered and systematically arranged the data, assuring precision and comprehensiveness. The concluding phase of the method entailed the analysis of the collected data using suitable statistical instruments to discern trends and correlations between the degrees obtained and the employment status of the graduates, alongside other significant aspects examined in this study.

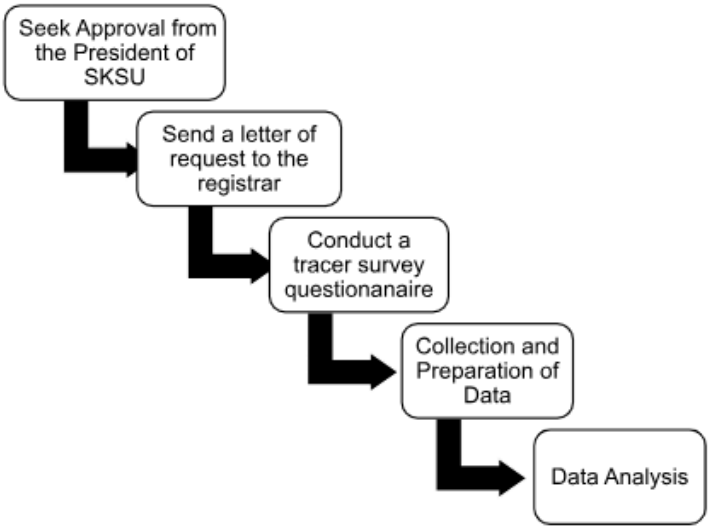

Figure 1. *Data Gathering Procedure*

Data Analysis

The percentage distribution of means was employed together with the frequency. The data were presented through bar graphs and tables. Analysis of variance (ANOVA) was used to determine the significant difference in the employment statuses of the graduates before and after taking the MAT-Mathematics program. Finally, the omega squared was utilized to measure the relationship and its effect size between degrees earned and the employment status of the graduates in the MAT-Mathematics program.

Results and Discussion

This section presents the analysis and interpretation of the data gathered relevant to the study.

Socio-Demographic Status of the MAT-Mathematics Graduates

This includes the age, gender, civil status, and year of graduation of the respondents.

The socio-demographic profile of graduates from the Master of Arts in Teaching (MAT) Mathematics program shown in Table 1 reveals significant trends that can inform future educational strategies and program improvements. Analysis shows that the majority of graduates fall within the 41-45 age range, accounting for 30.4% of respondents, while those aged 31-35 and 36-40 each represent 26.1%.

This indicates a predominance of middle-aged professionals pursuing advanced education, which aligns with findings from Buenvinida and Yazon (2017), who noted that older students often seek further education to enhance their qualifications and adapt to evolving job markets. This finding is also supported by Florendo and Regacho (2024) that most Master of Arts graduates are at the of age 36- 40

with a percentage of 36.99%. In contrast to the findings of Reotutar et. al. (2023) 43.33% of the Master Graduates in Mathematics are at the age of 20-30 age bracket.

Table 1. *Socio-Demographic Status*

	Frequency	Percent
Age		
25-30	3	13.0%
31-35	6	26.1%
36-40	6	26.1%
41-45	7	30.4%
46-50	0	0.00%
51-55	0	0.00%
56-60	1	4.3%
Gender		
Male	15	65.2%
Female	8	34.8%
Civil Status		
Single	5	21.7%
Married	17	73.9%
Widow or Widower	1	4.3%
Year Graduated		
2019	4	18%
2020	6	26%
2021	6	26%
2022	1	4%
2023	6	26%
	N=23	

Gender distribution among graduates is also notable, with males comprising 65.2% and females at 34.8%, reflecting ongoing gender dynamics in educational fields, as highlighted in various studies that discuss the underrepresentation of women in higher-level mathematics programs (Buenvinida, Yazon, & Yazon, 2017). However, Florendo Jr. and Regacho (2024) revealed that females comprised the majority of Master's graduates, accounting for 80.82%.

Furthermore, the civil status data indicates that a substantial majority (73.9%) of graduates are married, suggesting that many are balancing family responsibilities with their academic pursuits, a factor previously identified as influencing student engagement and performance (Indrahadi & Wardana, 2020). This finding was supported by Florendo and Regacho (2024) revealed that the majority of the respondents are married 58.9%. In contrast, the findings of Reotutar et al. (2023) indicated that 50% are married and the other half are single. While Corcino et al. (2023), had different findings in which 100% are single.

The year of graduation data shows fluctuations, with peaks in 2020 and 2021, which may suggest varying levels of accessibility and interest in the program over time. This trend points to potential areas for improvement in outreach and support for prospective students, particularly in light of the observed dip in graduates in 2022.

Overall, these findings underscore the need for educational institutions to consider socio-demographic factors when designing programs and support services to enhance inclusivity and accessibility for all students (Buenvinida, & Yazon, 2017).

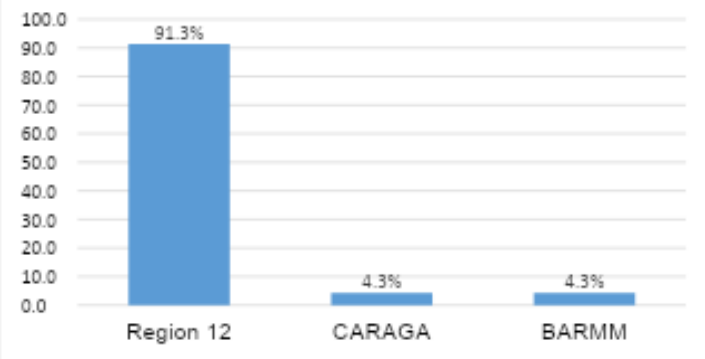

Figure 2. Region of Origin of the Respondents

The findings regarding the regional distribution of respondents in the study presented in Figure 2 indicate that a significant majority, specifically 91.3%, hail from Region 12 (SOCCSKSARGEN), while smaller portions, each accounting for 4.3%, come from the CARAGA and BARMM regions. This strong local presence of graduates within Region 12 suggests that the Master of Arts in Teaching Mathematics program is particularly accessible and relevant to the community it serves. The concentration of graduates in this region

underscores the vital role that local educational institutions play in addressing regional educational needs and fostering community development (Buenvinida & Yazon, 2017).

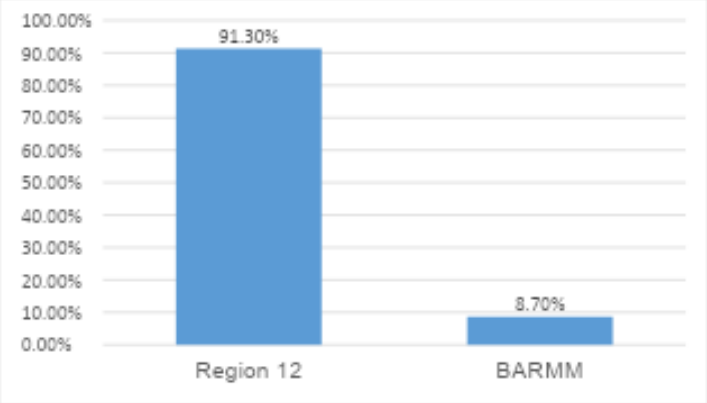

Figure 3. Place of Work of the Respondents

Presented in Figure 3 are the employment locations of MAT-Mathematics graduates. Notably, the majority, 91.3%, are employed in Region 12, while 8.7% are in the BARMM region. This implies that the majority of graduates of MAT mathematics are working at Region 12.

The findings about the employment locations of MAT-Mathematics graduates, where 91.3% are employed in Region 12 and 8.7% in the BARMM region, align with studies that emphasize the importance of local employment trends and regional workforce alignment. For instance, tracer studies such as those by Cañizares (2015) and Aquino et al. (2015) have documented that graduates often prefer employment within their regions, reflecting the relevance of education programs to local labor market needs. Additionally, Ramirez et al. (2015) found that higher education institutions play a critical role in preparing graduates to meet the demands of nearby industries, contributing to high local employment rates among alumni.

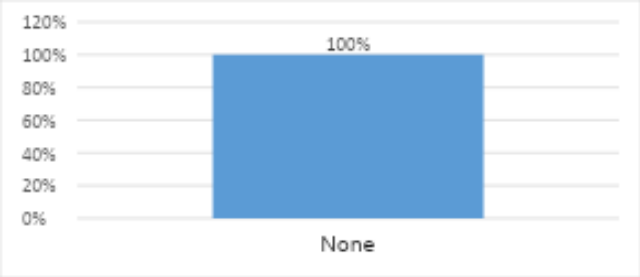

Figure 4. Scholarship in Completing Graduate Program of the Respondents

The figure shows that all 23 graduates of the MAT-Mathematics program completed their studies without a scholarship, representing 100% of the cohort. This finding indicates that none of the graduates received financial aid or scholarships for their Master's degree in Teaching Mathematics, indicating they relied on personal funds or alternative sources to finance their education.

For instance, the Philippine Graduate Tracer Study (2021) highlighted similar trends, noting that many graduate students finance their education independently due to limited access to scholarships or grants. Similarly, Florendo Jr. and Regacho (2024) emphasize the need for institutions to enhance support systems, including providing affordable programs and scholarship opportunities, to address financial barriers and promote inclusivity in higher education.

Reasons for Taking the MAT-Mathematics Graduate Program

It is depicted in Table 2, the various reasons for enrolling in the MAT-Mathematics Graduate Program among respondents. The most common motivation cited is the 'Prospect for promotion or career advancement,' with 82.6% of respondents identifying this as a primary factor. This indicates that professional growth is a significant driver for pursuing advanced education in mathematics. Following this, 56.5% of respondents indicated that their decision was influenced by the 'Area(s) related to the course,' highlighting the relevance of the program to their academic or professional backgrounds.

Additionally, 52.2% of graduates considered the 'Prospect of career advancement' as a major reason, further reinforcing the program's role in enhancing professional paths. 'Strong passion for the profession' was also a prominent reason, chosen by 47.8% of respondents, indicating a high level of intrinsic motivation among graduates.

Other motivations included 'Peer Influence' and 'Availability of course offering in the chosen institution,' each cited by 17.4% of respondents, while factors like 'Status or prestige of the profession' (13.0%) and 'Inspired by a role model' (8.7%) had a more moderate

influence. Lesser motivations, such as 'Good grades in High School,' 'Chosen Institution,' 'Prospect of attractive compensation,' 'Opportunity for employment abroad,' and 'No particular choice or no better idea,' each account for 4.3%.

Table 2. *Reasons for Taking the MAT-Mathematics Graduate Program*

Items	f	%
High grades in the course or subject	2	8.7%
Area(s) related to the course	13	56.5%
Good grades in High School	1	4.3%
Influence of parents or relatives	0	0%
Peer Influence	4	17.4%
Inspired by a role model	2	8.7%
Strong passion for the profession	11	47.8%
Prospect for promotion or career advancement	19	82.6%
Status or prestige of the profession	3	13.0%
Availability of course offering in chosen institution	4	17.4%
Chosen Institution	1	4.3%
The prospect of career advancement	12	52.2%
Affordable for the family	0	0%
The prospect of attractive compensation	1	4.3%
Opportunity for employment abroad	2	8.7%
No particular choice or no better idea	1	4.3%

These results underscore that career-related motivations, personal interest, and relevance to their field are the primary factors guiding graduates' decisions to enroll in the MAT-Mathematics program.

The motivations for enrolling in graduate programs, such as the MAT-Mathematics program, align with several studies on professional and academic growth. Career advancement is frequently cited as a primary factor, as shown in research by Esguerra et al. (2020), which found that graduate students often pursue further studies to secure job stability and remain competitive in their fields. Similarly, Dimla et al. (2022) reported that professional growth and relevance to one's field are significant motivators for mathematics educators enrolling in advanced programs.

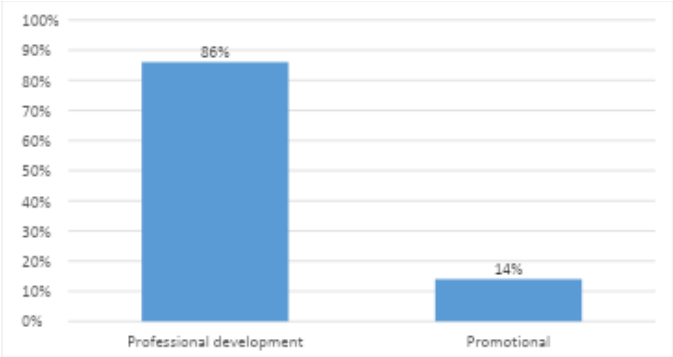

Figure 5. Reasons for Pursuing Graduate Studies of the Respondents

It is outlined in Figure 5 the graduate studies undertaken by MAT-Mathematics graduates. Notably, a significant majority, comprising 86%, pursued professional development opportunities. This means that respondents are actively seeking to enhance their content knowledge and pedagogical skills, as well as to stay abreast of contemporary trends in Mathematics education, thereby positioning themselves as effective educators in the field.

Conversely, 14% of the respondents indicated that their pursuit of graduate studies was motivated by aspirations for promotion. This distribution highlights that a portion of the graduates view further education as a means to achieve career advancement within the profession.

This finding is supported by Kalaw (2019) that professional development is a predominant factor driving graduate enrollment, particularly among educators seeking to enhance their content knowledge and teaching strategies. Additionally, Albina and Sumagaysay (2020) emphasized that career growth and professional preparedness are key motivators for pursuing advanced education, often tied to the practical benefits of skill enhancement and staying relevant in dynamic fields such as Mathematics education. These trends underscore the dual motivations of professional excellence and career progression in shaping decisions to pursue higher education.

Employment Profile of the Graduates

Figure 6 indicates that all 23 graduates (100%) successfully secured employment, demonstrating the program's effectiveness in preparing its students for successful job placement in their respective fields. This impressive employment rate suggests that the

curriculum and training provided by the program align well with the demands of the job market, equipping graduates with the necessary skills and competencies to thrive in their careers. Such results emphasize the crucial role educational institutions play in fostering employability and supporting graduates as they transition into the workforce.

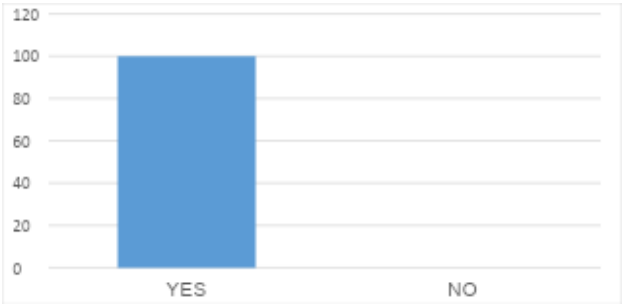

Figure 6. *Employment rate*

Paler and Roble (2021) reported that all (100%) PhD graduates in Mathematical Sciences with a specialization in Mathematics Education were employed. Similarly, Ramirez et al. (2015) conducted a tracer study on Bachelor of Science in Mathematics graduates from Rizal Technological University (RTU) spanning the academic years 2006–2011. Their findings indicated that the majority of graduates secured employment in their respective fields, particularly in business and commercial technology sectors, such as financial management. However, Biscante et al. (2019) found that approximately 74% of respondents were actively employed, whereas 10.1% had never been employed at the time of the survey due to personal or family-related concerns.

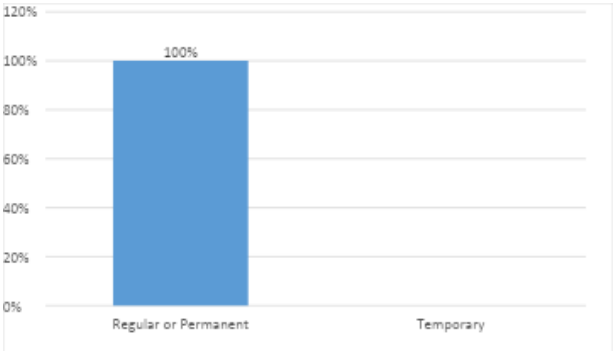

Figure 7. Employment Status

The present employment status of the respondents presented in Figure 7 shows that all 23 graduates are employed permanently, as evidenced by the 100% employment rate. This finding aligns with previous studies on the impact of graduate programs in securing long-term employment. For instance, Buenvinida, and Yazon (2017) found that graduates of Master of Arts in Education programs in a similar Philippine context achieved high rates of permanent employment. This supports the notion that advanced degrees in education, such as MAT Mathematics, enhance job security for graduates.

Similar findings were revealed by Reotutar et al. (2023) that Master of Arts in Mathematics Education (MAME) graduates from the University of Northern Philippines between 2015 and 2019 found that these graduates were predominantly employed in educational institutions, with many securing permanent positions in both public and private schools.

Likewise, Paler and Roble (2021) examined the employability and satisfaction of graduates from the mathematics education programs at the University of Science and Technology of Southern Philippines (USTP). Their findings indicated that graduates of the Master of Science in Teaching Mathematics (MST-Math) program were highly employable as secondary school mathematics teachers in both public and private institutions.

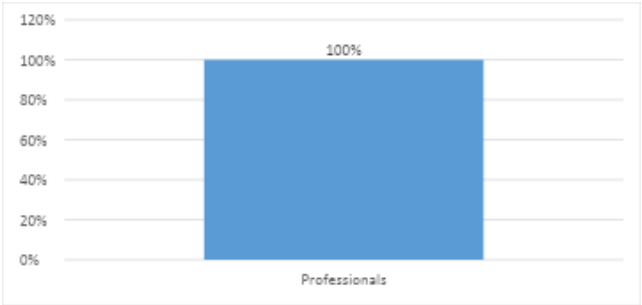

Figure 8. *Classification of Occupation*

The present occupation of the respondents is depicted in Figure 8. The results revealed that 100% of MAT Mathematics graduates work as professionals. This implies that all MAT Mathematics graduates are employed as professionals, demonstrating the program's effectiveness in preparing graduates for careers that directly utilize their mathematics expertise in fields like education, research, or technical roles.

This aligns with studies emphasizing the employability of graduates from specialized programs. For instance, Kalaw (2019) highlighted the role of graduate education in transitioning graduates into professional employment, while Dimla et al. (2022) reported that Mathematics graduates often secure positions requiring specialized skills in teaching and related sectors. Similarly, Osei et al. (2015) found that graduates of Mathematics programs frequently use their expertise in directly related professional fields, underscoring the alignment between academic preparation and occupational outcomes.

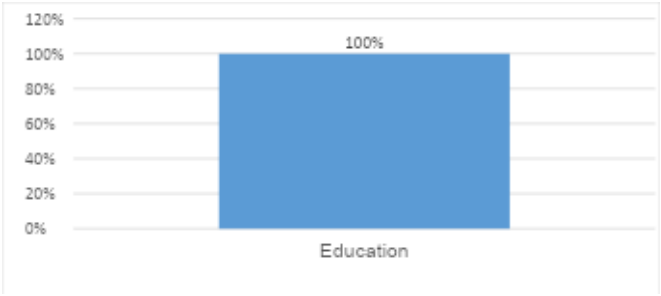

Figure 9. Major Lines in Business of the Company the Graduates are Presently Employed

Figure 9 shows that 100% of MAT-Mathematics graduates are employed in the education sector. This indicates a strong alignment between MAT-Mathematics graduates and careers in education, suggesting that their training is primarily focused on educational roles, with limited transition into other fields. This specialization underscores the role of MAT-Mathematics programs in preparing graduates for academic careers.

This result is consistent with similar studies, such as those by the Mary Frances Early College of Education, which reported a 100% employment rate for graduates in secondary mathematics education programs. Further, supported by Reotutar et al. (2023) revealed that master graduates in Mathematics are employed in the education sector months after graduation. Similar findings were found by Paler and Robl (2021) that graduates of the BSEd Mathematics and MST-Mathematics programs are highly employable as secondary school mathematics teachers in both public (Department of Education) and private institutions within the region.

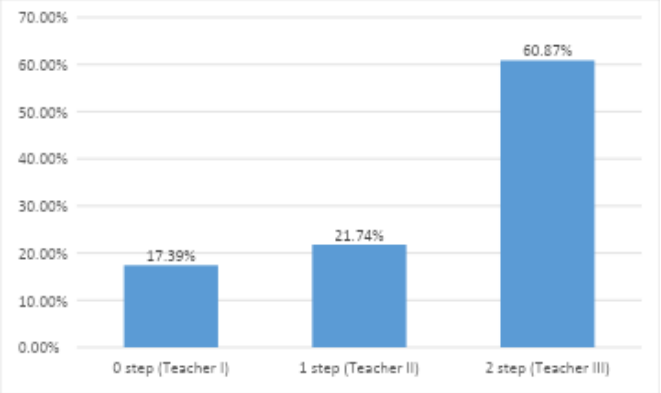

Figure 10. *Job Level Position in the Present Employment*

Figure 10 presents the levels of job promotion among MAT-Mathematics graduates. It shows that 60.87% of these graduates reached the 2-step promotion level, indicating that the majority experience moderate career advancement within their teaching roles. Meanwhile, 21.74% achieved a 1-step promotion, suggesting a smaller portion of graduates saw some progression, though at a lower level.

Conversely, 17.39% of graduates did not receive any promotions, indicating potential barriers to initial advancement or a portion of graduates who remain in entry-level teaching roles. This implies that teachers got promoted after the program supports career advancement for most graduates, as evidenced by the majority achieving a 2-step promotion. However, the presence of graduates with no promotions suggests a need to address potential barriers to advancement, such as professional development opportunities or institutional limitations.

The findings from the tracer study of MAT-Mathematics graduates at Sultan Kudarat State University (2019-2023) align with previous research on the role of graduate programs in career progression. Studies show that advanced degrees, particularly in education, often contribute to career growth and promotions. For example, Gines (2014) found that graduates of education programs typically experience

increased promotion opportunities as they gain additional qualifications and skills. However, studies like those of Buenvinida and Yazon (2017) also emphasize that certain institutional or personal factors may limit advancement for some graduates.

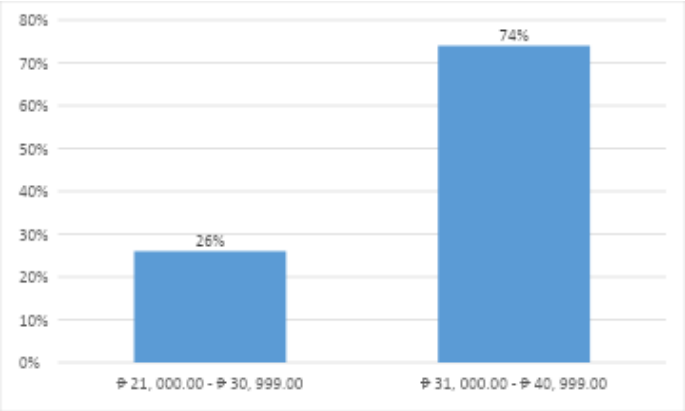

Figure 11. Gross Monthly Earning after Completing the Graduate Program

The gross monthly earnings after completing the graduate program are illustrated in Figure 11. The results show that most MAT-Mathematics graduates (74%) earn between ₱31,000.00 and ₱40,999.00 monthly after completing their graduate studies, indicating a mid-level income range for the majority. A smaller portion (26%) earns ₱21,000.00 to ₱30,999.00 indicating that graduate qualifications enhance earning potential, with a few graduates reaching high-income positions likely due to advanced skills or senior roles.

This aligns with research that shows teachers with graduate degrees often earn higher salaries compared to those with only a bachelor's degree, although they still typically earn less than professionals in other sectors with similar qualifications (Horn & Jang, 2017). Graduate education contributes significantly to teachers' ability to secure better-paying positions, particularly in more senior or specialized roles.

Permanent Job Position Before and After Taking the MAT-Mathematics Program

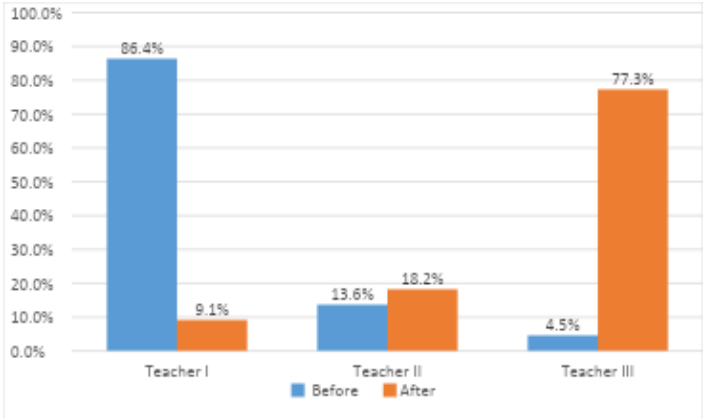

Figure 12. *Permanent Job Position Before and After Taking the MAT-Mathematics Program*

Figure 12 illustrates the shifts in permanent job positions among MAT-Mathematics graduates in teaching roles following the completion of a graduate program. Before pursuing the program, the majority (86.4%) held the entry-level position of Teacher I, while smaller proportions occupied Teacher II (13.6%) and Teacher III (4.5%). After completing the graduate program, there is a significant shift, with only 9.1% remaining as Teacher I, while the majority (77.3%) have advanced to Teacher III. Additionally, 18.2% now hold Teacher II positions.

This upward mobility indicates that the graduate program strongly supports professional advancement for MAT graduates, enabling them to move from entry-level positions to more senior roles, especially Teacher III. The data highlights the impact of further education on career advancement in teaching, emphasizing how graduate programs can play a crucial role in qualifying educators for higher-level positions, likely by enhancing their skills, credentials, and competitiveness in educational institutions.

These findings are consistent with studies showing that graduate education improves teachers' qualifications and facilitates their upward mobility within educational institutions, ultimately leading to better job security and increased salary potential (Horn & Jang, 2017). Additionally, these findings suggest that advanced education plays a key role in shaping career trajectories in the teaching profession, improving both teaching effectiveness and job satisfaction.

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Research Article

Relevance of the Graduate School Program

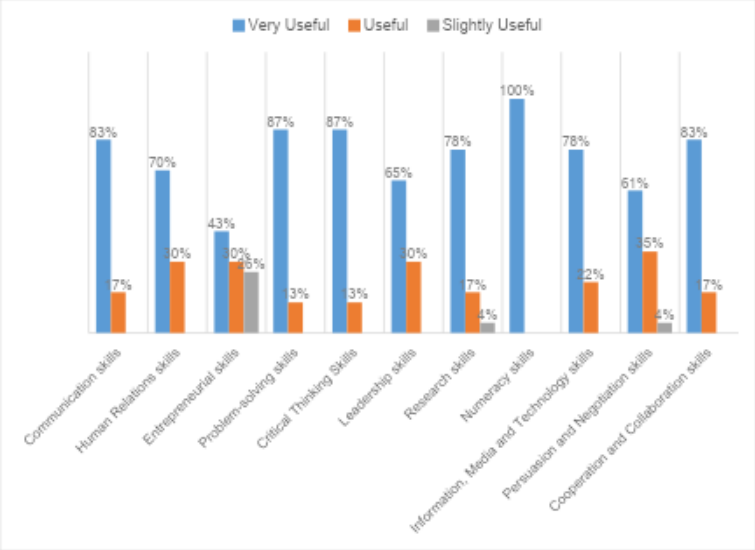

Figure 13. *Curriculum in the Graduate School Relevant to the Current Job*

The feedback from MAT-Mathematics graduates as shown in Figure 13, reflects a strong alignment between the curriculum's skill development and the demands of their current job roles. Numeracy skills are universally rated as "Very Useful" (100%), indicating their foundational importance in quantitative and analytical tasks. Problem-solving and critical thinking skills follow closely, with 87% of graduates marking them as "Very Useful," underscoring the necessity of these skills for addressing complex issues and making sound decisions in professional contexts.

Communication skills also rank highly, with 83% of respondents emphasizing their value in conveying complex concepts and fostering understanding, especially in educational and collaborative settings. Similarly, cooperation and collaboration skills, rated as "Very Useful" by 83%, highlight the importance of teamwork and interpersonal effectiveness in enhancing productivity and maintaining positive working relationships.

Human relations skills received a "Very Useful" rating from 70% of graduates, supporting constructive interactions and rapport-building, which are essential in both educational and professional environments. Research skills, rated as "Very Useful" by 65%, are moderately relevant, particularly for graduates involved in data analysis, academic research, or evidence-based decision-making. Leadership skills, with a 78% "Very Useful" rating, indicate that many graduates hold positions requiring management or mentorship, where guiding others and overseeing projects are crucial responsibilities. Information, media, and technology skills, valued by 78% of respondents, reflect the need for digital competencies in today's workplace, aiding tasks such as data visualization and the use of educational technology.

In contrast, entrepreneurial skills are rated as "Very Useful" by only 43% of graduates, suggesting that business development may be less emphasized within typical MAT-mathematics roles. Similarly, persuasion and negotiation skills, rated Very Useful by only 61%, appear less relevant to MAT graduates' professional responsibilities, aligning more closely with careers in sales, marketing, or management. Overall, the findings indicate that the MAT-Mathematics program successfully equips graduates with essential analytical, communicative, and collaborative skills suited to educational and analytical roles, while skills associated with entrepreneurship and negotiation are less emphasized.

This implies that research emphasizes the critical alignment between curriculum development and the skills required in the workforce, particularly for MAT-Mathematics graduates. Numeracy, problem-solving, and critical thinking are universally valued for their foundational role in analytical and professional tasks. Mukuka et al. (2020) demonstrated the effectiveness of structured frameworks like the SOLO taxonomy in fostering these skills, essential for addressing complex problems. Similarly, Voda et al. (2022) highlighted the growing interdependence of numeracy and digital skills in modern professions, enhancing productivity and adaptability. Additionally, High Point University's MAT program integrates communication, leadership, and collaboration skills to prepare graduates for diverse roles, underscoring their importance in educational and professional settings.

Figure 14 highlights the relevance of various components of the MAT-Mathematics program, as rated by graduates. Professional requirements and curriculum and instruction are considered highly relevant, with 83% and 87% of respondents marking them as "Very Relevant," respectively, indicating a strong alignment with the professional needs of graduates. The high relevance of curriculum and instruction underscores the program's effectiveness in delivering core academic content that prepares graduates well for roles in education and mathematics-related fields. Both the pool of faculty and experts and the quality of program delivery are rated as "Very Relevant" by 74% of respondents, emphasizing the importance of faculty expertise and effective teaching methods in shaping a valuable

learning experience.

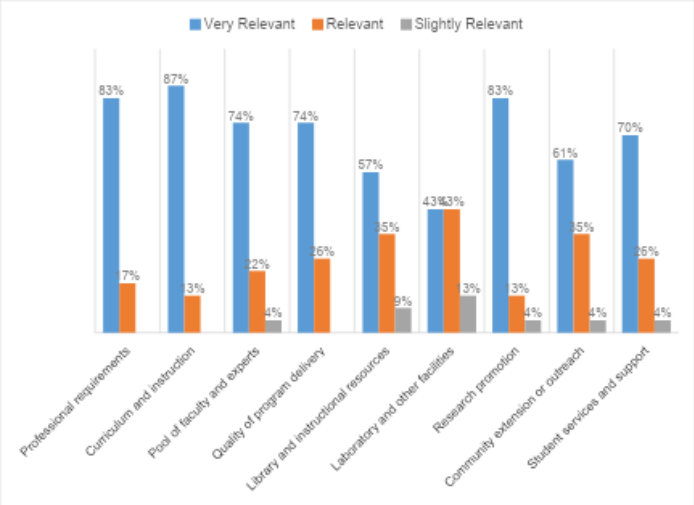

Figure 14. Relevance of the Graduate School Program

Library and instructional resources and laboratory and other facilities show moderate relevance, with 57% rating them as "Very Relevant" and 35% as "Relevant", indicating that while these resources are useful, some graduates may rely less on physical facilities, possibly due to digital alternatives. Research promotion is rated "Very Relevant" by 83%, reflecting the program's emphasis on scholarly work and research skills, which are particularly valuable for graduates in academic and analytical roles.

In addition, community extension or outreach and student services and support are seen as beneficial, with 61% and 70% marking them as "Very Relevant." This suggests that community engagement and support services contribute positively to graduates' experiences, linking theoretical knowledge with practical applications and ensuring a supportive educational environment. Overall, the MAT-Mathematics program aligns closely with graduates' professional needs, especially in terms of curriculum, instruction, faculty expertise, and research promotion, while resources and facilities, though moderately emphasized, remain valuable.

This finding aligns with the study by Daminar et al. (2022), which reported that 57% of respondents perceived the curriculum as directly relevant and applicable to their current employment. Moreover, these respondents believed they were equipped with the essential knowledge and skills necessary to enhance their employability in the teaching profession. Similarly, Cerado et al. (2020) found that 82% of graduates considered their first job relevant to their degree. However, Reotutar et al. (2023) identified several critical recommendations for improving the quality of education in the Master of Arts in Mathematics Education program. The most frequently suggested improvement was the enhancement of instructional quality, with eight respondents emphasizing the need for continuous professional development for educators. Specifically, they highlighted the importance of advancing pedagogical skills and integrating modern technologies into teaching practices.

Significant Difference In The Respondents' Employment Status Before And After Taking The Mat-Mathematics Program

Table 3. *Analysis of Employment Status of Graduates Before and After Graduation from MAT-Mathematics Program*

Source of Variation	Sum of Squares	df	Mean Square	$F_{computed}$	p_{value}
Between	25.13	1	25.13	65.89	0.000
Within	16.78	44	0.38		
Total	**41.91**	**45**			

α = 0.05 level of significance

Table 3 presents the ANOVA results for the employment status of graduates in the MAT-Mathematics program. The analysis yielded an F-value of 65.89 and a p-value of 0.000, which is below the significance level of 0.05. This provides sufficient evidence to conclude that the difference in employment status before and after completing the MAT-Mathematics program is greater than what would be expected by chance. This implies that graduates of the MAT-Mathematics program experience a significant improvement in their employment status after graduation.

These results imply that the MAT-Mathematics program appears to have a positive impact on graduates' employment status. This means that completing the program may enhance employability, possibly by providing skills, knowledge, or credentials valued in the job market.

This finding underscores the value of the program in enhancing graduates' employability. Furthermore, it aligns with the study by

Dimla et al. (2022), which found that the Master's program in Mathematics contributed to graduates' professional growth by deepening their subject knowledge, strengthening their pedagogical skills, and enhancing their research capabilities all of which were closely linked to improved job prospects upon degree completion.

Similarly, Asoy et al. (2024) reported that the employment rate of mathematics graduates from the 2022 to 2023 cohorts was 73.5%, indicating that nearly three-fourths of graduates possessed the necessary skills to secure and sustain employment. Moreover, the majority of these graduates obtained full-time positions and advanced to higher roles after graduation.

To emphasize the effect of the MAT-Mathematics program, the analysis is extended by calculating omega squared. Omega squared ($\omega 2$) is an effect size measure for ANOVA that estimates the proportion of variance in the employment status attributed to the MAT-Mathematics program. Based on the data shown in Table 4 the omega squared ($\omega 2$) was computed with results of 0.585. This means that about 58.5% of the variance in employment status can be attributed to the MAT-Mathematics program, indicating a large effect size with a strong relationship. This implies that the program has a substantial impact on graduates' employment outcomes.

These findings revealed that obtaining a master's degree in mathematics education can lead to salary increases, with teachers earning approximately 10-15% and achieving higher positions (Pepperdine University Graduate School of Education and Psychology, 2023). Additionally, Ellis (2010) discussed that an omega-squared (ω^2) value above 0.14 generally represents a large effect size, emphasizing the significant role of educational interventions in shaping employment trajectories.

Conclusions

The findings demonstrate that the MAT-Mathematics program primarily are mid-career professionals, and experienced individuals, with most graduates located and employed within Region 12, underscoring the program's significant regional impact. The self-financing of education by all graduates highlights their strong dedication to professional growth despite the lack of external financial support. These results reflect the program's role in cultivating committed educators who contribute to the development of mathematics education in their respective regions.

The primary motivation for pursuing the MAT-Mathematics Graduate Program is career advancement, followed by the program's alignment with the respondents' academic or professional backgrounds. Passion for the profession and future career prospects also play a significant role. Most respondents pursued the program to enhance their content knowledge, refine pedagogical skills, and stay informed about advancements in Mathematics education, underscoring a commitment to professional growth.

The MAT-Mathematics program ensures employability, with all graduates securing permanent positions within the education sector. The program has demonstrated its capacity to support career advancement, as many graduates have achieved promotions and competitive salaries, illustrating the value of advanced qualifications in enhancing professional growth.

The high promotion rate within one year of graduation, especially to advanced teaching levels, reflects the program's positive impact on career advancement. The substantial movement from Teacher I to Teacher III positions demonstrates the program's role in professional development and career elevation.

The MAT-Mathematics program has a strong alignment with the professional needs of its graduates, particularly in education. The curriculum effectively develops critical skills such as numeracy, problem-solving, communication, and collaboration, while leadership and digital competencies address modern workplace demands. The program's emphasis on curriculum relevance, faculty expertise, and research promotion underscores its effectiveness in preparing graduates for mathematics-related careers. While library resources are moderately utilized, the integration of digital alternatives reflects adaptability.

Statistical analysis confirms a significant improvement in employment status after program completion, indicating that the program has a meaningful impact on job opportunities and roles for graduates.

A large proportion of the variance in employment outcomes is linked to the MAT-Mathematics program. This strong effect size affirms the program's substantial impact on graduates' professional trajectories and employment stability.

Based on the findings and conclusions of the study, the researcher presents the following recommendations:

Establish scholarships, grants, or financial aid programs to assist MAT-Mathematics students, reducing the financial burden and making the program more accessible to a wider range of aspiring educators.

Enhance career advancement support for MAT-Mathematics graduates, and implement targeted career services—including mentorship programs, networking opportunities, and partnerships with educational institutions—to assist them in achieving their professional development goals.

Enhance a career development program that includes mentorship opportunities, institution partnerships, and continuous professional development.

Provide ongoing training and workshops to keep graduates abreast of the latest developments in mathematics education, ensuring they remain competitive in the field.

Expand digital library resources and training by increasing access to online journals, e-books, and databases, and providing training sessions on their utilization.

Regularly conduct tracer studies to track the employment outcomes of graduates and gather insights to further enhance the program.

Encourage graduates to pursue advanced degrees, such as the MAT-Mathematics program or other related postgraduate studies, to further their professional growth and expertise.

The school should conduct further studies about the satisfaction of the graduates in MAT-Mathematics with the services provided by the school.

References

Albina, A. C., & Sumagaysay, G. B. (2020). Graduate Tracer Studies: Implications for Curriculum Review and Development. Journal of Teaching and Learning for Graduate Employability. 10.1016/j.ssaho.2020.100055

Aquino, A. B., Punongbayan, E. J., Macalaguim, L. P., Bauyon, S. M., Rodriguez, R. A., & Quizon, G. R. (2015). Teacher education graduate tracer study. Asia Pacific Journal of Multidisciplinary Research, 3(5), 45–50. https://www.apjmr.com/wp-content/uploads/2016/01/APJMR-2015-3.5.2.06.pdf

Asia Pacific Journal of Multidisciplinary Research. (2017). Retrieved from www.apjmr.com. On December 13, 2024

Asoy, E. M., Ozaraga, A. M., Espinosa, D., Generalao, R., Escandallo, J., Cerna, C., & Muegna, K. J. (2024). An Employability Tracer Study Of Secondary Education–Mathematics Graduates From 2022 To 2023. EPRA International Journal of Multidisciplinary Research (IJMR), 10 (4). https://doi.org/10.36713/epra16594

Balanlay, M. C. D. (2021). Constructivist teachers beliefs, instructional practices and students' mathematics performance. Asian Research Journal of Mathematics, 17(1), 45-58. https://shorturl.at/FVOWx

Belecina, R. R., & Ocampo Jr, J. M. (2017). Towards quality graduate mathematics teacher education: A PNU CGSTER tracer study. Sosiohumanika, 10(1), 45-56. https://shorturl.at/k5oXq

Biscante, D. D. S., Clemencio, K. E., & Negado, K. L. E. (2019). Tracer Study of the Teacher Education Graduates. Aloha International Journal of Education Advancement (AIJEA), 1(3), 51-58. https://shorturl.at/Hi4mG

Buenvinida, L. P., & Yazon, A. D. (2017). Assessment of graduates of Master of Arts in Education (MAED) in one State University in the Philippines. Asia Pacific Journal of Multidisciplinary Research, 5(2), 77-86.https://shorturl.at/rUlhf

Caingcoy, M. (2020). Cross-sectional inquiry on employability and employment status of Bachelor of Secondary Education graduates (2016-2018): A tracer study. Available at SSRN 3632058. https://philpapers.org/rec/CAICIO

Cañizares, M. J. F. (2015). Tracing University of San Carlos' science and mathematics education graduates: How well are we in developing teacher professionals. International Journal of Research Studies in Education, 4(2), 69–86. https://doi.org/10.5861/ijrse.2015.985

Cerado, E. C., Falsario, M. J. S., Estrellan, J. C., & Paculanan, A. R. M. (2020). Enhancing higher education programs through a graduate survey'. International Journal of Current Research, 12(7), 12680-12692. https://doi.org/10.24941/ijcr.39252.07.2020

Corcino, R., Corcino, C., & Kiunisala, E. (2023). Cebu Normal University MS Mathematics Graduates: A Tracer Study. CNU-JOURNAL OF HIGHER EDUCATION, 17, 42-46. https://jhe.cnu.edu.ph/ojs3/article/view/270/41

Daminar, N. L., Biongcog, J. J., Remulta, R. F. N., & Biongcog, R. P. (2022). Employability Of Caraga State University Cabadbaran City Teacher Education Graduates Academic Year: 2016-2018. https://philpapers.org/rec/DAMEOC-2

Dimla, R., De Leon-Pineda, J. L., & Quiambao, D. (2022). Graduate program relevance and mathematics educators career: Evidence from the tracer study. International Journal of Adult Education and Technology, 13(1), 1–10. https://doi.org/10.4018/IJAET.310071

Dumford, A. D., & Miller, A. L. (2015). Assessing Alumni Success: Income is NOT the Only Outcome! Assessment and Evaluation in Higher Education, 42 (2), 195-207. https://doi.org/10.1080/02602938.2015.1098587

El Refae, G., Kaba, A., & Eletter, S. (2020). The Impact of Demographic Characteristics on Academic Performance. ERIC. https://doi.org/10.19173/irrodl.v22i1.5031

Esguerra, J., Garcia, A., & Jacaban, J. (2020). Motivations of graduate students to pursue graduate studies. University of Baguio Research Journal. https://rdc.ubaguio.edu/motivations-of-graduate-students-to-pursue-graduate-studies/.

Florendo Jr, A. L., & Regacho, R. T. (2024). A tracer study on the graduates of Master of Arts: A case study at a polytechnic college in La Union, Philippines. Jurnal Pendidikan Indonesia Gemilang, 4(1), 102–117. https://journal.gmpionline.com/index.php/jpig/article/view/346

Gines, A. C. (2014). Tracer study of PNU graduates. American International Journal of Contemporary Research, 4(3), 81-98. https://www.aijcrnet.com/journals/Vol_4_No_3_March_2014/10.pdfhttps://www.aijcrnet.com/journals/Vol_4_No_3_March_2014/10.pdf

Horn, A. S., & Jang, S. T. (2017). The Impact of Graduate Education on Teacher Effectiveness: Does a Master's Degree Matter? MHEC Research Brief.https://www.mhec.org/sites/default/files/resources/teacherprep1_20170301_3.pdf

Indrahadi, D., & Wardana, A. (2020). The impact of sociodemographic factors on academic achievements among high school students in Indonesia. International Journal of Evaluation and Research in Education, 9(4), 1114–1120. https://doi.org/10.11591/ijere.v9i4.20572ResearchGate+5

Kalaw, M. T. B. (2019). Tracer Study of Bachelor of Science in Mathematics. International Journal of Evaluation and Research in Education, 8(3), 537-548. https://doi.org/10.11591/ijere.v8i3.17434

Kusmanto, H. (2024). Evaluating Alumni Communication and Curriculum Relevance: A Tracer Study of Tadris Mathematics Department at IAIN Syekh Nurjati Cirebon. International Journal of Education and Humanities, 4(1), 75-83. https://doi.org/10.58557/(ijeh).v4i1.208

Lubienski, S. T., & Pinheiro, W. A. (2020). Gender and Mathematics: What Can Other Disciplines Tell Us? What Is Our Role?. Journal of Urban Mathematics Education, 13(1), 1-14. https://doi.org/10.21423/JUME-V13I1A377

Mukuka, A., Balimuttajjo, S., & Mutarutinya, V. (2020). Exploring students' algebraic reasoning on quadratic equations: Implications for school-based assessment. International Conference to Review Research in Science, Technology, and Mathematics Education.

Osei, C. K., Dontwi, I. K., Otchere, K. G., & Singye, A. A. (2015). Curriculum relevance and graduate career: a tracer study of Cemba, Cempa and industrial mathematics graduates. Journal of Science and Technology (Ghana), 35(2), 89-99. 10.4314/just.v35i2.9

Paler, M. C. L., & Roble, D. B. (2021). Employability and Satisfaction of Mathematics Education Program Graduates of a Science and Technology University in Southern Philippines. European Journal of Education Studies, 8(5). https://oapub.org/edu/index.php/ejes/article/view/3728

Pentang, J. T., Perez, D. R., Cuanan, K. H., Recla, M. B., Dacanay, R. T., Bober, R. M., ... & Nur-aina, A. (2022). Tracer study of teacher education graduates of Western Philippines University-Puerto Princesa Campus: Basis for curriculum review and revision. International Journal of Multidisciplinary: Applied Business and Education Research, 3(3), 419-432. https://doi.org/10.11594/ijmaber.03.03.12

Pepperdine University Graduate School of Education and Psychology. (2023). How much could a master's degree increase your teaching salary? Retrieved from https://gsep.pepperdine.edu/blog/posts/how-much-could-a-masters-degree-increase-your-teaching-salary.htm

Ramirez, T. L., Cruz, L. T., & Alcantara, N. V. (2015). Tracer study of Bachelor of Science in Mathematics graduates from RTU. Researchers World: Journal of Arts, Science & Commerce, 6(1), 45–52. https://files.eric.ed.gov/fulltext/EJ1232301.pdf.

Reotutar, M.A., Riboroso, R. A., Llagas, R.M. & Taban J. G. (2023)Employment of the Employment of the Master of Arts in Mathematics Education Graduates of a University in Northern Philippines. Universal Journal of Educational Research, 2(3), 226-240. https://works.hcommons.org/records/t6j33-75x41

Reusia, D. H. R., Rogayan, D. V. Jr., & Andres, K. P. (2020). Science education graduates of a state university from 2008-2018: A tracer study. The Normal Lights, 14(1), 56-79. https://doi.org/10.56278/tnl.v14i1.1496

Senate of the Philippines (2024). EDCOM 2: DepEd to address teacher mismatch, quizzed on low utilization rate in House budget hearing. Retrieved from https://legacy.senate.gov.ph/press_release/2024/0904_edcom1.asp, on October 03, 2024

Taherdoost, H. (2016). Sampling methods in research methodology: How to choose a sampling technique for research. International Journal of Academic Research in Management, 5(2), 18–27. https://doi.org/10.2139/ssrn.3205035

Yee, M.K (2024).EdCom II and the promise of hope. Retrieved from https://opinion.inquirer.net/162034/edcom-ii-and-the-promise-of-hope, on October 03, 2024.

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