

Pathways to Success: Determinants of Employment Outcomes for Medical Laboratory Science Graduates of LORMA Colleges

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Abstract

Medical Laboratory Science (MLS) graduates faced various factors that significantly influenced their employability, including internship experiences, technical competencies, personal attributes, and institutional support. Previous graduate tracer studies provided insights into employment trends but had limitations, including low response rates and a lack of focus on key employability factors. This study aimed to address those gaps by examining the employment outcomes of MLS graduates between 2021 and 2024, with a focus on identifying these key factors and assessing their impact on employability. Utilizing a convergent mixed-method design, a total of 146 graduates participated in a structured online survey using stratified sampling, which revealed a 99.32% employment rate, with 98.63% securing positions directly related to MLS, and 91.74% of the respondents are employed as medical technologists. Furthermore, 83.56% of graduates obtained employment within three months of completing their program. The perceived level of employability was most influenced by the quality of training, while personal traits and soft skills, classified under personal attributes, were key contributors to employability. Internship experiences, on the other hand, significantly influenced actual employment outcomes. Graduates emphasized the value of hands-on training, clinical exposure, and well-equipped laboratories. Findings underscored the critical role of experiential learning and institutional support in enhancing employability in the healthcare sector.

Keywords: *Medical Laboratory Science (MLS); graduate tracer study (GTS); employment outcomes; employability*

Introduction

In today's competitive healthcare landscape, the ability to secure meaningful employment after graduation has become a key measure of success for professionals in specialized fields like Medical Laboratory Science. For graduates, the journey from the classroom to a successful career is shaped by numerous factors, ranging from academic preparation to external market forces. Medical Laboratory Science (MLS) professionals are a group of highly qualified experts who analyze biologic specimens and provide precise results for diagnosing medical conditions and tracking treatment outcomes (Kaur, 2023). With the demand for healthcare services and technological advancements on the rise, the need for skilled and knowledgeable graduates in this field has never been greater.

For many MLS graduates, securing employment within a reasonable time after graduation is not only a measure of personal success but also a reflection of the quality of education and training they received. Universities that offer medical laboratory science programs must prepare the students for this highly technical field. There are several medical laboratory science colleges where aspiring medical laboratory scientists can obtain a bachelor's degree in a broad or specific scientific discipline (Drummond, 2023). However, despite the growing importance of this field, limited institutional research has been conducted to specifically examine the employment outcomes of MLS graduates, particularly in the context of developing countries like the Philippines. This study aims to address this gap by exploring the employment outcomes of MLS graduates from LORMA Colleges, a leading institution in healthcare education in the Northern Philippines.

A question is posed, what determines whether MLS graduates were not only secure employment but also pursue and thrive in a career as Medical Technologists? The answers lie in their knowledge, technical skills, competencies, and professional readiness. These factors not only influence employment rates but also determine employability, reflecting the graduates' ability to meet industry demands, as well as the skills and capabilities that enable them to meet employers' requirements and adapt to changes in the labor market (Hosain et al., 2021).

In recent years, one of the main causes of work difficulties among Chinese college graduates has been the mismatch between the talents those graduates possess and the abilities that employers require. The COVID-19 pandemic's structural contradiction in employment still has an impact on the labor market in the United States. On the one hand, many recent college graduates are unable to provide the perfect business with favorable treatment and favorable surroundings. The majority of open positions, however, are lower-paying and unstable, so college graduates tend to steer clear of them. College graduates are unable to obtain employment as a result, and firms are unable to hire new staff. Higher education's framework and the need for skills for social and economic advancement are at odds, as seen by the structural contradiction between recruitment and employment difficulties. Furthermore, the main obstacle to college graduates' employment in China during the COVID-19 pandemic is the structural mismatch between their skill set and what employers require. Furthermore, studies have indicated that the employment structural contradiction was more provident and emerged as the primary conflict in the employment sector during the COVID-19 pandemic (Wang et al., 2024).

A study by the Victorian Allied Health Workforce Research Program (2024) examined the MLS workforce in Victoria, Australia where 32% of Australia's Medical

Laboratory Scientists are employed. It found that 64% entered the profession with a university-directed MLS bachelor's degree, 5% with a graduate-entry MLS master's degree, and others with various postgraduate qualifications, including graduate certificates, diplomas, master's degrees, doctorates, and PhDs. The study highlights a knowledge gap regarding who holds accredited MLS qualifications or relevant experience and their teaching expertise in specialized MLS courses (Donkin & Gusset, 2024).

A study by Ellapen et al. (2021) examined the growth patterns of the medical technology profession in South Africa, revealing significant insights into workforce dynamics. The annual growth rates for students, interns, and practitioners were 6.8%, 28.9%, and 0.7%, respectively, highlighting rapid growth in the number of interns relative to practitioners. However, the transition from internship to practitioner status has been declining, with a 1.2% decrease in practitioner registration recorded between 2013 and 2018. This trend reflects an attrition problem in the profession. Additionally, only 55.9% of registered medical technologists were employed in 2016, pointing to a mismatch between the number of professionals and available positions in the job market. The study concluded that there are more medical technologists than job opportunities in both public and private sectors, which hinders employment outcomes. The growing number of students, juxtaposed with the dwindling number of practitioners, underscores systemic barriers such as limited job openings and challenges in the transition from education to practice. The authors emphasize the need for further research to understand why graduates are not registering as practicing medical technologists and recommend addressing these employment determinants to align workforce supply with demand.

The employment rate measures the percentage of working-age individuals currently employed, reflecting the overall job market's ability to absorb new workers. As of August 2024, the Philippines' employment rate stood at 96.0%, showcasing a high level of job participation (Philippine Statistics Authority, 2024). On the other hand, the employability refers to the likelihood or ability of graduates to secure employment after completing their education, considering factors like skills, education, and labor market demand (Lambert, 2023). A higher level of employability indicates that graduates are equipped with relevant qualifications and practical experience, making them attractive to employers. Factors influencing employability include the quality of academic programs, the reputation of the educational institution, industry connections, and the alignment of graduates' skills with evolving job market needs.

During the period of 2011 to 2018, a tracer study in the Philippines examined the employment prospects and interest in additional education among MLS graduates from San Pedro College (SPC). A 'Gradient Tracer Study' questionnaire, which was approved by the Commission on Higher Education, collected quantitative data, while qualitative insights from focus group discussions were analyzed theme-wise to verify the quantitative results. Most of the graduates were women, who had cleared their licensure and were employed locally within a month of their graduation. This was particularly evident in the health and social work field. The study revealed that the graduates were found to have received appropriate training from SPC in terms of skills, attitudes, and knowledge for their careers by qualitative analysis. They affirmed that the curriculum aligned well with SPC's core values, emphasizing truth, excellence, social responsibility, and respect for individual uniqueness (Ang & Candelario, 2021). The research underscores the necessity of regularly pursuing graduate tracer studies as an integral part of academic programs. In

addition, the study supports current research on what factors influence employment opportunities for MLS graduates.

The primary objective of Higher Education Institutions (HEIs) is to equip students with the skills necessary to adapt to the rapidly evolving demands of the labor market. This necessity has prompted a focus on how educational programs, particularly in health sciences, prepare graduates for employment. A study assessing the Bachelor of Science in Medical Technology/Medical Laboratory Science (BSMT/BSMLS) and Bachelor of Science in Physical Therapy (BSPT) programs in the Philippines employed a descriptive-correlational design to investigate the relationship between graduates' satisfaction with their education and the adequacy of their respective programs. The findings revealed that preparation for board examinations significantly influences graduates' transition from education to employment. A majority of graduates reported local employment in positions relevant to their fields, indicating that these programs effectively prepare students for their careers (Saong et al., 2023). This aligns with previous studies emphasizing the importance of comprehensive educational frameworks that integrate theoretical knowledge with practical training. For instance, graduate employability is closely linked to the competencies developed during their academic training, which are essential for meeting industry standards (Abelha et al., 2020).

Moreover, the study of Saong et al. (2023), underscores the role of high-quality instruction and well-structured internship programs in enhancing graduate satisfaction and employability. Graduates expressed satisfaction with their educational experiences, attributing their preparedness for the workforce to the quality of instruction and practical opportunities provided during their studies. This finding is supported by the idea that effective internship programs are essential for bridging the gap between academic learning and real-world application (Bawica, 2021).

Recently, graduate tracer studies have emerged as essential tools for assessing the employability and employment outcomes of higher education graduates. Graduate Tracer Studies are structured surveys conducted post-graduation to monitor graduates' progress and accumulate valuable data. A study on LORMA Colleges' MLS graduates from the year 2016 to 2021 provides insight into the determinants that impact their success in securing employment within the medical technology field. Utilizing a quantitative-descriptive research design, the study employed a researcher-made questionnaire distributed through Google Forms and printed copies to gather data. The study on the employment outcomes of LORMA Colleges' MLS graduates from 2016 to 2021 reveals important trends and insights regarding their post-graduation pathways. Out of the 442 graduates surveyed, 157 responded, resulting in a response rate of 35.52%. (Baladad et al., 2023). The questionnaire distribution included snowball sampling, where research coordinators contacted graduates and encouraged them to share the survey link with their peers. Printed questionnaires were also distributed in hospitals and during alumni visits to the College. This method allowed the researchers to collect comprehensive data, despite challenges in graduate participation. Among the employed respondents, 71 (73.96%) work as medical technologists in clinical laboratories, while 11 (10.47%) are affiliated with government institutions. Eight graduates (8.33%) are college instructors in private educational institutions, and the remaining are self-employed or in unrelated fields, such as call centers.

LORMA Colleges, through its Bachelor of Science in Medical Laboratory Science (BSMLS) program, prepares students for careers in clinical laboratory-related courses,

offering both theoretical knowledge and practical laboratory training. Graduates can pursue roles in hospitals, clinics, the academe/teaching, diagnostic industry, research laboratories, and public health, contributing to patient care through diagnostic testing. The College's modern laboratory facilities further support student learning and professional development.

Additionally, recognized for its commitment to quality, is the first and only private college in Region 1 to receive ISO certification from the Anglo Japanese-American Registrars Incorporation and has been granted deregulated status by the Commission on Higher Education of the Philippines (Softamo Education Group, 2023). One of the main objectives of Higher Education Institutions (HEIs) is to guarantee that all students acquire the skills required to adapt to the quickly shifting demands and conditions of the labor market. In order to produce employable graduates, universities must think about how they train their students. Based on the most recent rankings, LORMA Colleges Philippines is ranked 9487th in the globe and 102nd in the nation. These rankings provide evidence of the caliber of the school's academic offerings and instruction.

According to Softamo Education Group (2023), the ranking is based on a number of variables, such as internationalization, research output, student satisfaction, and academic reputation. On top of that, according to Board Exams Ph, LORMA Colleges achieved a noteworthy 75% passing percentage for first-time examinees on the most recent Medical Technologists Licensure Examination, which was held on 6th and 7th day of August, 2024. This accomplishment highlights the school's dedication to providing top-notch instruction in medical laboratory science and efficient student preparation, setting graduates up for a bright future in the healthcare industry.

This study is significant as it provides valuable insights into the employment outcomes of MLS graduates from LORMA Colleges. For educational institutions, the findings will help assess how well the MLS curriculum prepares students for the workforce, allowing for improvements in training and internship opportunities to better align with industry needs. Graduates and current students will benefit from a clearer understanding of their career prospects, helping them make informed decisions about career paths and skills development. For employers, the study offers data on the readiness of MLS graduates for medical technology roles, helping to identify areas where graduate skills align with or differ from industry demands. Policymakers can use the results to inform strategies for addressing employment gaps in the healthcare sector, enhancing job placement rates, and supporting workforce development in medical technology. Lastly, this study provides a foundation for future researchers offering a reference for further studies on employment trends and challenges faced by MLS graduates.

This study, utilizing a convergent mixed-method design, examined the employment outcomes of Medical Laboratory Science graduates from LORMA Colleges between 2021 and 2024. The quantitative component focused on the perceived level of employability based on graduates' self-assessed confidence, the quality of training received, the facilities where they completed their internships, their personal traits, soft skills, and opportunities for career growth. It also analyzed employment rates, particularly the number of graduates employed in medical technology-related positions, along with their employment status and job roles. Complementing this, the qualitative phase gathered open-ended responses to capture graduates' insights and suggestions for improving the MLS program, providing deeper context to the statistical trends.

The scope of the study is limited to individuals who completed their program during the specified years, not based on the graduation year or attendance at commencement exercises. Specifically, it includes graduates from 2021 to 2024 who took the board exam in August 2024. Moreover, the study is limited to MLS graduates from LORMA Colleges and excludes those who are pursuing careers outside medical technology or further studies. Furthermore, the study only investigates the perceived level of employability from the graduates' perspective and does not include the views of employers. It solely utilizes quantitative data and does not analyze external factors such as economic conditions or individual experiences.

Objectives

The primary objective of this study is to assess the employment outcomes and level of employability of Medical Laboratory Science (MLS) graduates from LORMA Colleges from the years 2021 to 2024. Specifically, this study aimed to:

1. Determine the academic background of the respondents in terms of:
 - a. Year of completion of the degree/program;
 - b. Highest educational attainment;
 - c. General Weighted Average (GWA) in the BMLS program; and
 - d. Average performance rating in the Medical Technology Licensure Examination.
2. Identify the employment outcomes of MLS graduates in terms of:
 - a. Alignment of current employment with the MLS field (e.g., working as medical technologists versus unrelated occupations); and
 - b. Duration taken to secure employment after graduation.
3. Establish the employment rate of LORMA Colleges' MLS graduates from 2021 to 2024.
4. Analyze the influence of the following factors on the employment of MLS graduates:
 - a. Academic performance;
 - b. Competency and skills;
 - c. Internship experience; and
 - d. Professional networking.
5. Examine the perceived contributing factors that affect the employability of graduates in terms of:
 - a. Quality of training; and
 - b. Facility where the internship was affiliated.
6. Identify the personal attributes that contribute to employability, such as:
 - a. Personal traits (e.g., confidence, initiative, work ethic);
 - b. Soft skills (e.g., communication, teamwork, leadership); and
 - c. Opportunities for career growth.

INPUT

PROCESS

OUTPUT



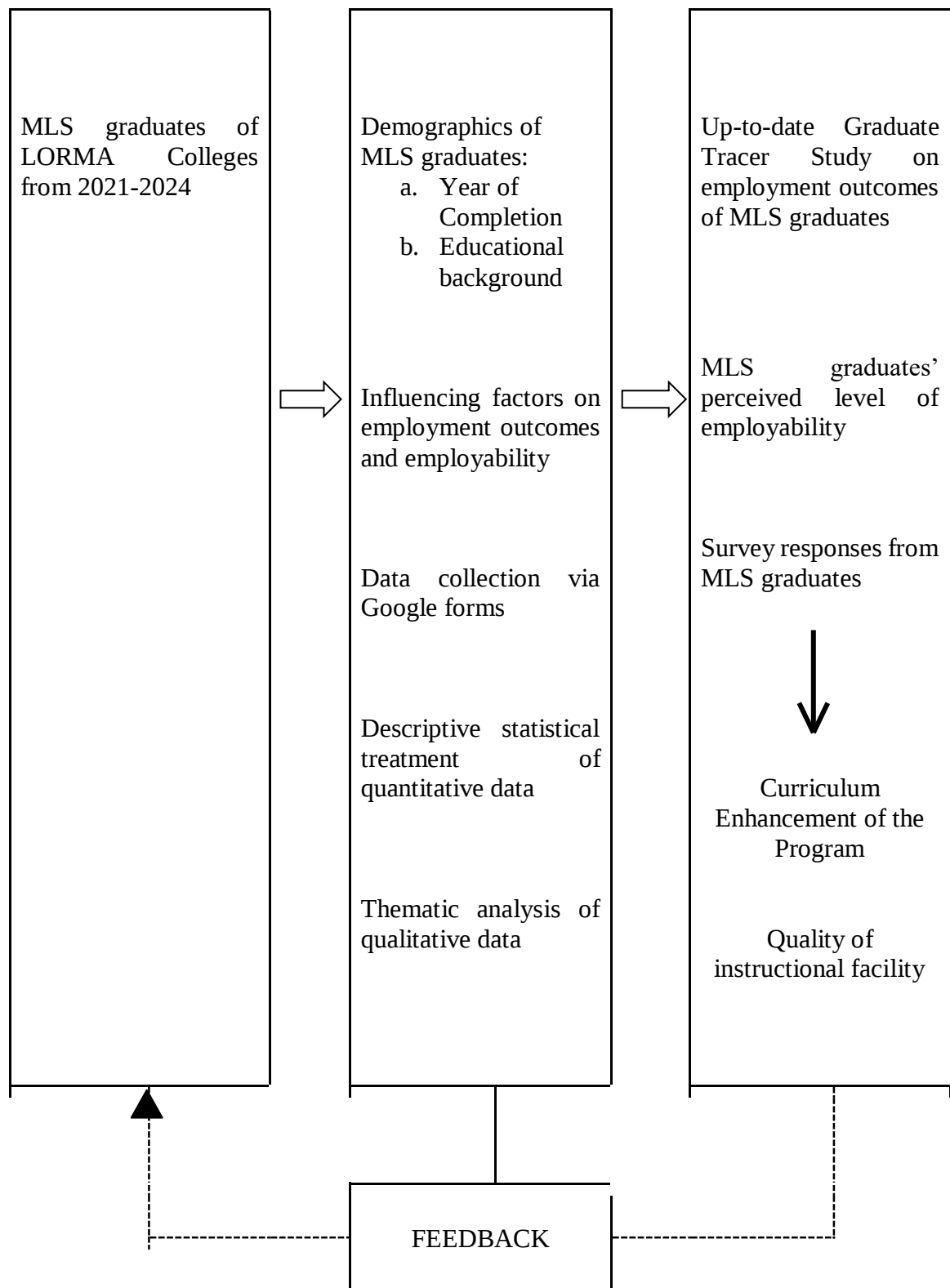


Figure 1. *Research Paradigm*

This study utilized a convergent mixed-method approach that integrated both quantitative and qualitative research methods. In this approach, the quantitative phase was conducted first, where numerical data was collected and analyzed to identify patterns, trends, and statistical relationships. Subsequently, the qualitative phase followed, in which open-ended questions were used to gather deeper insights and understanding of the participants' experiences, opinions, and suggestions. The convergent aspect means that both data types (quantitative and qualitative) were collected simultaneously, but they were analyzed separately. Specifically, this study employed a descriptive research design aimed at providing an accurate account of the current employment outcomes of LORMA Colleges' MLS graduates, where data were collected and analyzed to summarize various aspects of the graduates' employment status. The analysis primarily involved the use of mean values, frequencies, and percentages to quantify and present the data.

The convergent mixed-method design was deemed appropriate for the study as it enabled the researchers to capture both quantitative trends and qualitative insights relevant to the research objectives. The quantitative data provided the primary basis for analyzing the graduates' academic background, employment outcomes, and influencing factors through descriptive statistics. Meanwhile, the qualitative component, limited to open-ended responses, was used to gather the graduates' suggestions for improving the MLS program. This integration enriched the findings by adding context and participant-driven recommendations, supporting the overall goal of understanding both the outcomes and potential areas for development in the program.

The target population for this study was MLS graduates from LORMA Colleges who completed their degrees between the school year 2021 and 2024, including January and June graduates. For this study, "completers" refers to individuals who have satisfied all academic and institutional requirements for the MLS program, regardless of whether they have formally graduated or obtained their Registered Medical Technologist (RMT) license.

Participants had to meet specific inclusion criteria to ensure the study focuses on relevant respondents. Eligible participants included MLS completers from the specified timeframe who had completed all program requirements at LORMA Colleges, excluding those who graduated in August 2024, as they might not yet have had enough time to pursue significant employment opportunities or complete the licensure examination process before the study period. The study consisted of individuals who are either Registered Medical Technologists/Medical Laboratory Scientist (RMTs) or were actively pursuing employment in roles related to medical laboratory science. Participants also had to provide informed consent to be included in the study. While individuals who do not meet the inclusion criteria will be excluded. This included those who did not officially graduate from the MLS program during the specified timeframe and did not attend the commencement exercises.

A stratified sampling technique was employed to ensure representation across subgroups of the target population. The population was divided into smaller, similar groups (called strata), and samples were randomly chosen from each group. This method improves the validity of research findings by ensuring diverse population characteristics are appropriately represented (Thomas, 2020).

A total of 224 graduates comprised the target population for this study. The sample size of 144 respondents was determined using Slovin's formula with a 5% margin of error. This approach was employed to ensure that the sample accurately represents the

target population while maintaining precision and minimizing sampling bias. However, a total of 146 respondents participated in the study, which is acceptable and still meets the requirement for statistical accuracy while ensuring the sample represents the target population without introducing bias.

This study utilized structured online survey questionnaires through Google Forms specifically designed for recent graduates of the MLS program. This questionnaire served as the main instrument for collecting comprehensive data on demographics, employment status, and determinants of employment outcomes. The survey instrument was a researcher-made questionnaire related to employment outcomes for graduates in the healthcare field, with questions crafted to reflect the unique context of the MLS program. Modifications were made based on feedback from faculty members and career services professionals to ensure that the language and content were relevant to the target population.

The questionnaire included several essential sections aimed at understanding the factors influencing employment outcomes among MLS graduates. Demographic information, such as the year of completion of the degree and educational background including the General Weighted Average (GWA) and board exam ratings, provided foundational data for subgroup analysis. Employment-related data assessed participants' current employment status, the time taken to secure a job after graduation, the relevance of the role to their MLS degree, and the type of organization (e.g., hospitals or diagnostic laboratories). Additionally, the survey explored determinants of employment outcomes, focusing on factors such as academic performance, continuing education, work experience (internships), professional networking, competencies and skills, and participation in professional organizations. It also included items assessing the perceived level of employability of the graduates and examined specific factors such as the quality of training received, the type of facility where the internship was affiliated, personal traits and soft skills, and the role of career growth in enhancing employability. The survey included a Likert scale and open-ended responses for a comprehensive analysis of participants' experiences.

The Likert scale used in the questionnaire assessed the influence of various factors on employment outcomes, with participants rating each factor according to the following scale:

Table 1. Likert Scale for Measuring the Degree of Influence on Employment and Employability

Scale	Degree of Equivalence
4	Highly Influential
3	Moderately Influential
2	Fairly Influential
1	Minimally Influential

To ensure the validity and reliability of the instrument, the survey underwent a thorough validation process involving expert review by five (5) faculty members in the MLS program and career services personnel to assess content validity. Validity refers to the accuracy or how well the questionnaire measures what it is intended to measure (Ranganathan, 2020). Based on the expert review, the questionnaire achieved a validity score of 4.17, indicating that the instrument is highly valid and that the content is appropriate, relevant, and clearly aligned with the study's objectives.

A pilot test was also conducted with a small group of graduates from before 2021 to evaluate the clarity and reliability of the questions, with feedback used to refine the instrument before final distribution. Specifically, thirty (30) MLS graduates participated in the pilot testing to assess the consistency and dependability of the survey questions. The reliability of the questionnaire was measured using Cronbach's alpha, a statistical method used to determine the internal consistency of the items in the survey. Cronbach's alpha measures how closely related a set of items are as a group, with values ranging from 0 to 1 (Taber, 2020). In this study, the result was 0.799, which is considered very highly reliable, indicating strong consistency among the survey items in measuring the same underlying concepts.

This study was executed through a structured online survey questionnaire via Google Forms. To ensure the integrity and objectivity of the research, the researchers disclosed any potential conflicts of interest and confirmed that no external funding institution influenced the study's design, data collection, or interpretation of the results.

Following this, the researchers identified potential participants through institutional records and alumni networks, sending an invitation via Facebook messenger and through email. Additionally, the researchers distributed questionnaires by visiting organizations such as La Union Medical Diagnostic Center and Hospital (LUMED), Ilocos Training and Regional Medical Center (ITRMC), Bethany Hospital, Philippine Red Cross La Union Chapter, and City Health Office, where the questionnaires were floated to relevant staff members. All participants were provided with information that outlines the study's purpose and assuring confidentiality.

Participants were provided with a link to the Google Forms survey along with clear instructions on how to complete it. The survey remained open for a specified period, allowing participants to complete it at their convenience. To ensure a higher response rate, reminders were sent to those who have not responded within the collection period. The researchers also monitored the survey platform to address technical issues and ensure the smooth completion of the questionnaire.

Throughout the data collection process, various ethical principles were implemented. Anonymity was maintained by assigning unique identifiers to participants, ensuring that individual responses cannot be linked back to personal information. Confidentiality was upheld by securely storing all collected data, accessible only to the research team, and removing personal identifiers from datasets before analysis. To avoid causing harm, the survey questions were framed appropriately, and participants were informed of their right to skip any questions they find uncomfortable. In addition to this, this study aimed to contribute positively to understanding employment outcomes for MLS graduates, potentially informing future curriculum improvements and career services. The researchers also strove to include a diverse sample of participants, ensuring that the findings are representative of the broader graduate population.

The data collected from the questionnaire were analyzed using a combination of descriptive statistics and qualitative thematic analysis. For the quantitative data, frequencies, percentages, and means were used to summarize and present the demographic data, employment outcomes, factors influencing employment, and perceived level of employability of the respondents. For the qualitative data, open-ended responses were analyzed using thematic analysis, which involved categorizing responses into themes to gain a deeper understanding of the MLS graduates' suggestions for improving the MLS program at LORMA Colleges. This mixed-method approach allowed for both the measurement of key trends and an exploration of participant's insights.

Table 2. Weighted Mean Scale for Determining Factors

Weighted Means	Point of Scale	Degree of Equivalence
3.26 - 4.00	4	Highly influential (HI)
2.51 - 3.25	3	Moderately influential (MI)
1.76 - 2.50	2	Fairly influential (FI)
1.00 - 1.75	1	Minimally influential (MMI)

Table 2 displayed the Weighted Mean Scale used to evaluate the influence of various factors on the employment outcomes and perceived level of employability of MLS graduates. The scale is based on a range from 1.00 to 4.00, with each range corresponding to a specific level of influence. A score between 3.26 and 4.00 is categorized as Highly Influential (HI), indicating a strong impact on employment outcomes. Scores from 2.51 to 3.25 are considered Moderately Influential (MI), reflecting a moderate effect, while scores between 1.76 and 2.50 are deemed Fairly Influential (FI), signifying a minor influence. Finally, scores from 1.00 to 1.75 are rated as Minimally Influential (MMI), indicating a minimal or negligible impact. This scale was used to quantify the influence of various factors, helping to provide a clearer understanding of which elements were seen as most significant in the graduates' employment experiences and career development.

Results

Academic Background of the Participants

Year of Completion of Degree/Program

Table 3. Year of Completion of MLS graduates at LORMA Colleges

Year of Completion	Number of Respondents	Percentage (%)
2021	29	19.86
2022	3	2.05
2023	47	32.19
2024	67	45.89

Table 3 showed the Year of Completion of MLS respondents from LORMA Colleges (2021–2024). The majority came from 2024, with 67 participants (45.89%), likely due to their accessibility as recent graduates. This was followed by 47 respondents from 2023 (32.19%), reflecting ongoing engagement from recent alumni.

In the year 2021, a total of 29 respondents were recorded, accounting for 19.86% of the overall sample. In contrast, the year 2022 yielded the lowest number of respondents, with only 3 individuals, representing just 2.05% of the total. These factors may have not only affected students’ academic performance but also contributed to reduced alumni engagement in post-graduate follow-up studies.

Highest Educational Attainment

Table 4. Highest Educational Attainment of MLS graduates at LORMA Colleges

Highest Educational Attainment	Number of Respondents	Percentage (%)
Baccalaureate	146	100%
With Master’s	0	0.00
With Doctorate Units	0	0.00
Post-Baccalaureate Proficiency Training	0	0.00

Table 4 revealed that all 146 Medical Laboratory Science graduates from LORMA Colleges currently hold a baccalaureate degree, with no one yet having pursued postgraduate education or post-baccalaureate training. According to Merriam-Webster Dictionary, a baccalaureate is the degree of bachelor, conferred by universities and colleges. Meanwhile, the Cambridge Dictionary defines post-baccalaureate as referring to studies or programs that take place after earning a bachelor’s degree, often as preparation for graduate school or professional advancement. Post-baccalaureate

programs can include short courses or certifications that enhance professional competency, such as HIV proficiency testing, water and food microbiological analysis, molecular diagnostics, or clinical research training (Association of Schools and Programs of Public Health, 2023).

While no respondents had advanced degrees at the time of the study, this presented a promising area for future growth. Higher educational attainment often opens doors to specialized roles, academic appointments, research opportunities, and leadership positions in healthcare and laboratory science (Blagg, 2024). However, it is important to recognize that career progression in the field is often driven by a combination of factors, including certifications such as ASCP(i), specialized courses, practical experience, business ventures, and continuous professional development. While the absence of postgraduate qualifications may suggest limited access to such opportunities, many professionals still attain senior positions based on experience, practical skills, and performance (Sheppard & Taylor, 2024). Therefore, although higher educational attainment offers a clear advantage, it is not the only route to career advancement in the field of MLS. It is also worth noting that many graduates, particularly those from recent cohorts such as the class of 2024, may still be exploring or planning their path toward further studies.

General Weighted Average Upon Graduation

Table 5. General Weighted Average of MLS at LORMA Colleges

General Weighted Average	Number of Respondents	Percentage (%)
1.75 (91-93%)	1	0.68
2.00 (87-90%)	10	6.85
2.25 (83-86%)	32	21.92
2.50 (80-82%)	59	40.41
2.75 (77-79%)	36	24.66
3.00 (75-76%)	8	5.48

Based on the data presented in Table 5, a substantial proportion of MLS graduates obtained a General Weighted Average (GWA) of 2.50, equivalent to a grade range of 80–82%, representing 40.41% of the total respondents. This is followed by 36 graduates, or 24.66%, who attained a GWA of 2.75 (77–79%), indicating a commendable academic performance.

Remarkably, only one graduate, accounting for 0.68% of the cohort, achieved a GWA of 1.75 (91–93%), reflecting a high level of academic excellence. These figures suggest that while the majority of respondents performed satisfactorily, a small number demonstrated exceptional academic achievement.

A high GWA is widely regarded as a significant indicator of a graduate’s academic potential, level of expertise, and readiness for professional practice. It often serves as a strong foundation for employment opportunities and career advancement (Imose et al., 2022). Through employability, GWA may be related to objective

professional success. In addition, through skill use, GWA may have an impact on the growth and development aspect of subjective professional success. (Steindórsdóttir, 2024). In line with Gary Becker’s Human Capital Theory, individuals who invest considerable time and effort in their academic pursuits tend to enhance their skills and qualifications, thereby increasing their employability and likelihood of securing favorable job placements.

Medical Technology Licensure Examination Rating

Table 6. Medical Technology Licensure Examination Rating of MLS LORMA Colleges Graduates

Medical Technology Licensure Examination Rating	Number of Respondents	Percentage (%)
87-90%	6	4.11
83-86%	29	19.86
80-82%	54	36.99
77-79%	45	30.82
75-76%	12	8.22

The results of the board exam reflect trends in academic performance, with 54 (36.99%) of the graduates scoring between 80-82% and 45 (30.82%) between 77-79%. A smaller portion, with a total of 6 (4.11%), achieved ratings in the 87-90% bracket. These findings align with the study by Cabanban (2024), which found a “low to substantial” correlation between academic performance and licensure examination results. This suggests that although academic performance plays an important role, it is not the sole predictor of board examination success.

The academic and professional performance profiles of respondents who finished a medical technology program were shown in Tables 5 and 6. The purpose of the data is to provide insights into the graduates’ general educational background and board exam performance over a span of four years, from 2021 to 2024. A study conducted by Mohamed et al. (2022) stated that the academic performance of students varies widely. Although most Medical Technology graduates do well on both the academic and licensing exams, the study shows that there is still opportunity for improvement in order to obtain higher distinctions. The growing number of graduates over time is a sign that the program is expanding. However, the low rate of postgraduate advancement among graduates suggests that educational institutions have the opportunity to promote further education. Enhancing clinical internship programs and offering focused review sessions may improve performance on the licensing exam, as supported by existing studies. According to Quinto (2019), procedural knowledge and laboratory skills are the two components that will help enhance the student’s internship performance and quality of Medical Technology laboratory practices. Institutions should take these findings into account when improving their support systems and curriculum in an effort to improve future graduates’ academic and professional results.

Employment Outcomes of MLS Graduates

Field of Employment

Table 7. Field of Employment of MLS Graduates from LORMA Colleges

Field of Employment	Number of Respondents	Percentage (%)
Medical Technologist/Clinical Laboratory	134	91.74
Academic/Teaching	7	4.79
Research and Development in Medical Technology	0	0.00
Specialized Medical Laboratory Industry	0	0.00
Diagnostic Medical Laboratory Industry	0	0.00
Medical/Laboratory/Hospital Technician	3	2.05
Unrelated Field	2	1.37%

The data from Table 7 showed that a very high percentage—144 out of 146 respondents (98.63%)—were employed in jobs aligned with Medical technology, with the majority (91.74%) working as Medical Technologists or working in Clinical Laboratories. This demonstrated a strong connection between their course of study and the key sector in which they are currently employed. Medical technologists' primary responsibilities include evaluating blood samples, body fluids, tissues, and other clinical samples, as well as executing a variety of complex and quantitative tests, in order to achieve the goals of biological screening through molecular studies (Cheong, 2021). In addition, 4.79% of the respondents were employed under the academe. A small portion of graduates were employed in positions as Medical/Laboratory/Hospital Technicians (2.05%). The field of laboratory technicians represents an area of health care that has seen significant improvement in recent years. The introduction of various laboratory tests and diagnostic techniques as a result of technical improvements has brought a new viewpoint on the area of laboratory technicians (Chernopolski et al., 2021). Moreover, a slightly smaller percentage (1.37%) obtained employment into unrelated fields. It is good to point out that there are no respondents currently in specialized fields such as Research Development, or within the Diagnostic and Specialized Medical Laboratory Industry. This distribution shows that most of the graduates are working in the core industry, while entering more specialized fields involves limited options.

The results of this study highlight that the 144 of 146 of LORMA Colleges' MLS graduates (98.63% of the respondents) secured roles directly related to their training, such as medical technologists in hospitals, clinics, or free-standing laboratories, including those working as teaching staff under the MLS program and as medical/laboratory technicians. This outcome suggests that the program is effective in preparing students for employment within their field of study. In fact, the high percentage of graduates finding roles as medical technologists indicates that LORMA Colleges' curriculum and practical training are well-aligned with industry needs. This finding aligns with the study by Saong

et al. (2023), which found that graduates from health sciences programs, including MLS, reported high levels of satisfaction with their education and were predominantly employed in roles pertinent to their degrees. The study emphasized the importance of academic preparation and internships in improving employability. In line with Bawica (2021), who highlighted the role of academic and internship experiences in enhancing health sciences graduates' readiness, 91.74% of LORMA Colleges graduates secured medical technologist roles, showcasing the effectiveness of the institution's programs.

About 7 graduates (4.79%) worked as faculty members or teaching assistants in the field of medical technology. This suggests a small yet significant interest in academic careers, indicating that LORMA Colleges not only prepares clinical professionals but also nurtures future educators in the field. This aligns with the tracer study conducted by Quinto and Posada (2020) at Lyceum of the Philippines – St. Cabrini, which revealed that although the majority of graduates were employed in clinical laboratories, a small portion pursued teaching careers or further studies. Their findings support the idea that a strong undergraduate program in Medical Laboratory Science can provide a solid foundation for diverse professional trajectories, including those in academia and graduate education.

Furthermore, a small portion of the graduates (2.05%) found employment as Laboratory Technicians or Medical Laboratory Technicians. While these positions are closely related to the medical laboratory science field, they differ from the role of medical technologists. Laboratory Technicians and Lab Aides assist with specimen collection, testing, and preparation but are not typically responsible for diagnosing or interpreting test results. These positions are valuable career paths, especially for graduates who may not immediately secure a medical technologist role. According to the study of the American Society for Clinical Laboratory Science (2021), some graduates struggle to find these roles immediately due to challenges such as an oversaturated job market or delays in licensure. Similarly, some graduates from LORMA Colleges experienced delays in securing medical technologist roles and took on temporary positions in related fields, such as laboratory technician roles. These roles, though related, do not require the same level of responsibility for diagnosing and interpreting test results. Thus, while some graduates were able to secure clinical positions, others had to take on support roles in the medical field, reflecting broader challenges within the employment landscape for this field.

The study conducted by Baladad et al. (2023) tracked the BMLS graduates for the period 2016-2021 and found a significant number of them getting employed in their line of specialization, particularly in clinical laboratories. This high employment rate demonstrates that the program successfully prepared students for the workforce. On the other hand, the report also indicated that there are no graduates who had expanded into specialized areas such as Research and Development in Medical Technology, Specialized Medical Laboratory Industry, and Diagnostic Medical Laboratory Industry, and only minimal to Medical/Laboratory/Hospital Technician and unrelated fields. This can be for a variety of reasons, for example, limited access to higher-level streams of career during their undergraduate degree, limited local opportunity for such higher-level streams of work, and a need for additional postgraduate study, for example, in molecular biology or other higher-level sciences not offered or supported locally at the undergraduate level. A large number of graduates were hired locally and in positions related to their programs (Saong et al., 2023). Furthermore, the study recognizes that the sufficient academic preparation graduates obtained from their school or university is the reason for their high employability both domestically and internationally (Bonifacio et al., 2023).

In essence, the high employability of BSMLS graduates from LORMA Colleges, particularly in roles directly related to their field of study such as Medical Technologists and Clinical Laboratory staff, confirms that the program effectively connects academic training with industry needs. This alignment demonstrates that the curriculum is responsive to workforce demands and prepares graduates for professional practice. Supporting this, studies by Baladad et al. (2023) and Saong et al. (2023) found that strong academic preparation from higher education institutions has a significant impact on graduates' successful entry into the labor market.

Although the study found generally positive job experiences and satisfaction among graduates, it also highlighted that career paths in medical laboratory science can be complicated and unclear. Some graduates may encounter uncertainty when pursuing specializations or advancement due to limited visibility and evolving expectations in the field. In response, various organizations have launched campaigns to promote awareness of laboratory careers and improve recognition of their value in healthcare (Guenther et al., 2024). These initiatives aim to support career development and ensure a steady pipeline of skilled professionals in the sector.

Table 8. Current Job Title or Position of MLS Graduates from LORMA Colleges

Current Job Title/Position	Number of Respondents	Percentage (%)
Medical Technologist	129	88.36
Faculty/Clinical Instructor	7	4.79
Phlebotomist	4	2.74
Local Government Unit Official	1	0.68
Laboratory Section Head	1	0.68
Medical Laboratory Technician	3	2.05
Medical Student	1	0.68

The findings in Table 8 showed that the majority of graduates, 88.36%, are employed as medical technologists, which is a typical entry-level position in the field. Their primary role is to assist medical professionals in diagnosing patients (Santiago, 2023). Within this group, some respondents hold more specific or advanced roles, such as Medical Technologist II and HIV Proficient/Blood Bank Head, though they are still classified under the general category of “Medical Technologist” in the table. These variations reflect career progression and specialization within the same professional track. Other reported job titles include faculty/clinical instructor (4.79%), phlebotomist (2.74%), and medical laboratory technician (2.05%). Additionally, one graduate works in a local government unit (0.68%), and another is currently a medical student (0.68%). These figures underline the dominance of clinical laboratory roles among the graduates and demonstrate the multiple career pathways that a BMLS degree can support.

Most graduates start their careers in these roles, with a smaller percentage progressing to higher positions like Medical Technologist II over some years of employment. According to the result of the study of Guenther et al., (2024), it indicated a wide variety of educational backgrounds and professional paths in different professions.

Most respondents said that relatives, family, coworkers, and acquaintances had told them about jobs in laboratories. A family member with more extensive professional health care experience was present in at least one-third to almost one-half of the respondents. At least 75% of respondents indicated that they would recommend their occupation or another laboratory occupation, indicating that they had a positive opinion of their jobs. Guenther et al. (2024) state that although career paths into medical laboratory vocations are complicated and often confusing, this study indicated mainly favorable job experiences and satisfaction.

A study conducted by Lacanaria et al. (2024) evaluated the competence of LORMA Colleges BS MLS graduates and the program’s effectiveness in meeting professional needs and industry trends. While in conclusion, the BS MLS program of LORMA Colleges was deemed "highly effective" in preparing graduates for professional practice in medicine, research, clinical laboratories, and public health practice as well as for advanced degree studies, the actual employment status of LORMA MLS graduates reveals otherwise. Based on available data, most of the respondents are employed in clinical laboratories, with few undertaking graduate studies or taking on research and development positions. This disparity could be attributed to a number of factors, including limited access to postgraduate studies, lack of exposure or information regarding research opportunities in undergraduate studies, and the availability of immediate employment opportunities in generalist positions. According to Central Luzon Doctors’ Hospital (n.d.), newly licensed RMTs in general start working in the clinical laboratory as a generalist medical technologist, conducting a range of diagnostic tests in the fields of immunology, microbiology, clinical chemistry, and hematology—aligned with the dominant employment trend of LORMA graduates. Additionally, some employers may require a postgraduate degree or laboratory experience, further limiting the number of graduates taking on specialized or research-based positions (Gili et al., 2023).

To conclude, the professional development of LORMA Colleges BMLS graduates shows how important entry-level jobs like Medical Technologist I are for starting careers in the medical laboratory and healthcare industries. A minority of graduates pursue a variety of career paths, such as faculty positions, phlebotomy, and Chairperson or HIV Proficient/Blood Bank section head, demonstrating the versatility of a BMLS degree.

Duration Taken to Secure Employment

Table 9. Duration Until Employment Of MLS LORMA Colleges Graduates

Duration Until Employment	Number of Respondents	Percentage (%)
Less than 3 months	122	83.56
3 - 6 months	21	14.38

7 - 9 months	2	1.37
10 - 12 months	1	0.68
1 - 2 years	0	0.00
More than 2 years	0	0.00

Table 9 showed that most LORMA Colleges MLS alumni found work swiftly after graduation. This implies that the College's curriculum and training are aligned with the requirements of the job market or that there is high demand for the medical technologists which the LORMA College is able to provide. The connection is due to the fact that the program is concentrated on laboratory hands-on training, licensure exam preparatory courses, and hospital-based internship, which endow graduates with skills required in real healthcare practice. Moreover, the Philippine Statistics Authority (PSA) in January 2025 posted a 96.8% employment rate, indicating a healthy job market. Further, Herbosa (2024) quoted a shortage of 190,000 healthcare workers in the country, specifically medical technologists, indicating the demand for this profession is high. Being the only school of MLS in this part of the Ilocos region is strategic, which means that our graduates find immediate employment locally. Overall, 83.56% found employment in less than three months, demonstrating their excellent employability and the significant demand for their talents. Graduates are well-prepared to take on crucial positions in medical laboratories and associated facilities due to the program's efficacy. The demand for LORMA MLS graduates is steady and immediate due to their direct contribution to the community's healthcare system. Their fast employment results from their entry into the workforce, which is important for maintaining these healthcare services' operational capacity. Their academic journey in internship offers possibilities and solid industry connections may also be responsible for this high employment rate. The "extremely good evaluation rating" (Dela Cruz, 2022) shows that the competencies developed are highly valued and transferable across various professional and personal domains, despite the fact that only 4.79% of graduates go on to pursue careers in academia. According to this, the program develops a wide range of abilities that are not just useful in academic settings, including critical thinking, research skills, communication proficiency, and subject matter expertise. The high evaluation rating suggests that employers and individuals from various industries appreciate the notable worth and versatility of these graduate competencies, enabling graduates to succeed and make valuable contributions in a variety of related fields outside of academia.

Of those surveyed, 14.38% secured employment within 3 to 6 months. This further strengthens the graduates' competitive advantage in the job market by indicating a comparatively brief time spent looking for a job, suggesting that their qualifications and training effectively meet industry needs. Within 7 to 9 months, 1.37% of graduates found work. Despite being a longer duration, this timeframe is still considered reasonable given the fluctuations or competition present in the labor market. Furthermore, 0.68% found job placements between 10 to 12 months, showing that only a small portion of graduates experienced prolonged job search periods. It is just a few because there is a strong need for skilled medical technologists, as evidenced by the small percentage of graduates who are having lengthy job searches. Graduates of Lorma Colleges' program clearly possess the abilities that employers in the healthcare industry look for. The vast majority of their

Medical Technology graduates are placed effectively as a result of their excellent preparation. This delay may be attributed to limited job openings at the time or challenges in meeting specific job requirements. The table reveals that, none of the respondents reported being unemployed for more than a year. These outcomes demonstrate how well the program equips graduates for the workforce, ensuring they possess the competencies needed to make a smooth and timely transition into professional employment.

Employment Rate of MLS Graduates

In relation to Table 7 seen in page 27, there are 146 respondents in total who participated in the survey. 145 respondents with a percentage of 99.32% are employed, this indicates that there is a very high employment rate among the graduates. One respondent is a medical student, showing that despite the majority being employed, there is an individual who chose to pursue further studies in the medical field. The program's ability to produce graduates who are prepared for the healthcare profession and are ready for the workforce is demonstrated by the employment of 145 respondents. Although one respondent is pursuing medicine and is not currently employed, this reflects how the curriculum can provide a strong academic foundation for further education. The BMLS program's ability to facilitate both immediate employment and ongoing academic development is demonstrated by these outcomes.

According to Contreras and Moreno's (2020) survey, the majority of the graduate participants were employed full-time. Within three months of obtaining their license, over half of them were able to find employment. In summary, the employment trends of BMLS graduates from LORMA Colleges between 2021 and 2024 show a strong correlation with national employment trends in the medical technology industry. It is clear that the program is successful in turning out professionals who are prepared for the workforce, but in order to maintain the workforce's sustainability in this vital healthcare field, consideration must be paid to the anticipated future need.

Considering the findings, the employment outcomes of LORMA Colleges' BMLS graduates from 2021 to 2024 clearly demonstrate a strong alignment between academic training and the current demands of the medical technology profession. With 82.88% of graduates employed in positions directly related to their field, the data suggest that the program has been effective in equipping students with the necessary competencies for professional practice. Moreover, the presence of graduates who have pursued careers in education or specialized areas indicates the flexibility and depth of the academic preparation they received.

These results are consistent with national trends, where there is a sustained and growing demand for qualified medical laboratory professionals due to the increasing complexity of healthcare services and the expanding role of diagnostic testing. As such, the success of LORMA's BMLS graduates underscores the importance of maintaining high standards in academic instruction and clinical training. Continuous evaluation and enhancement of these programs are essential to ensure that future graduates are not only employable but also capable of meeting the evolving needs of the healthcare system.

Extent of Factors Influencing Employment

Academic Performance

Table 10. Influence of Academic Performance on Employment Outcomes of MLS Graduates

Academic Performance	WM	DE
Extent to which the overall academic performance influencing employment security	3.37	HI
Extent to which curriculum relevance to industry standards aided job attainment.	3.40	HI
Extent to which GWA or academic standing impacted employment opportunities.	2.98	MI
Extent to which theoretical knowledge from major subjects contributed to employment.	3.34	HI
Extent to which academic recognition or honors helped in job applications.	2.97	MI
Average	3.21	MI

Legend: 3.26 - 4.00 - Highly influential (HI), 2.51 - 3.25 - Moderately influential (MI), 1.76 - 2.50 - Fairly influential (FI), 1.00 - 1.75 - Minimally influential (MMI), Weighted Mean (WM), Degree of Equivalence (DE)

Under the Academic Performance category, the overall weighted mean (WM) for this aspect is 3.21, which is classified as Moderately Influential (MI). This suggests that while academic factors play a role in the employability of graduates, they should be supported by additional personal and professional qualifications. Among the academic performance factors, curriculum relevance to industry standards received the highest WM of 3.40 and is categorized as Highly Influential (HI). This indicates that having a curriculum aligned with industry requirements is the most significant academic factor in securing employment.

The finding aligns with Human Capital Theory by Gary Becker and Theodore Schultz, which posits that education and skill development are investments that enhance an individual's productivity and employability. The high WM for curriculum relevance supports this theory by indicating that industry-aligned academic programs equip graduates with the knowledge and skills that directly meet job market demands, thereby increasing their competitiveness (Ross, 2023).

The second highest WM is attributed to overall academic performance with a score of 3.37, classified as Highly Influential (HI). This finding reinforces the idea that strong academic foundations contribute significantly to employability, providing graduates with essential knowledge, skills and competencies, critical thinking skills, and problem-solving abilities that are valuable in professional settings. According to Dr. Manjunath (2020), academic performance is a critical factor that positively affects employability, highlighting its importance in the job market.

Theoretical knowledge in major subjects also holds high importance, with a WM of 3.34, underscoring that a strong grasp of core academic concepts significantly contributes to job readiness. As emphasized by Alreja (2023), theoretical knowledge provides the foundational framework necessary for developing practical skills in medical

education. This intellectual base not only reinforces competence in laboratory procedures but also enhances graduates’ ability to adapt, analyze, and apply scientific principles in real-world clinical settings, qualities that are highly valued by employers. Thus, theoretical knowledge significantly contributes to employment outcomes by preparing graduates to handle job-specific tasks, address complex problems, and adapt to new technologies, skills essential for success in the medical laboratory field.

On the other hand, General Weighted Average (GWA) or academic standing received a WM of 2.98, making it only Moderately Influential (MI). This suggests that while academic rankings and grades may serve as indicators of consistency and diligence, they do not solely determine employability. According to Baladad et al. (2024), although academic standing is important, it is not the sole determinant of employment prospects in the medical laboratory science field. Employers increasingly prioritize practical competencies, hands-on experience, and adaptability to workplace demands.

Following this, the lowest value is attributed to academic recognition or honors received during studies, which has a WM of 2.97 and is also considered Moderately Influential (MI). This implies that while receiving awards and honors can provide some advantages, they are not as impactful as other academic performance factors in securing employment which aligns with Signaling Theory. This theory suggests that while awards and honors indicate individual achievements, their influence on employability is less significant compared to signals that are directly related to job readiness. Employers who lack complete information tend to prioritize practical skills and relevant education because these signals are more credible and valuable for assessing a candidate’s suitability for workplace demands (Connelly et al., 2024).

While academic performance is an important element in the employability of Medical Laboratory Science (MLS) graduates, it is not the sole factor influencing employment outcomes. Employers place greater emphasis on the alignment of curricula with industry standards and graduates’ ability to apply theoretical knowledge in real-world settings. This underscores the need for institutions to update programs to reflect current professional practices and technological advancements. Although general weighted average (GWA) and academic honors reflect consistency, they are less reliable indicators of workplace readiness. To better prepare students, institutions must go beyond academic rigor by incorporating practical training, industry exposure, and skills development into their curricula, enhancing graduates’ ability to meet employer expectations and succeed in the workforce.

Competency and Skills

Table 11. Influence of Competence and Practical Skills on Employment Outcomes of MLS Graduates

Competency and Skills	WM	DE
Extent to which technical laboratory skills influenced securing employment.	3.51	HI
Extent to which adaptability to new technologies and protocols affected job prospects.	3.30	HI

Significance of communication and interpersonal skills in securing employment.	3.36	HI
Extent to which effective communication enhanced laboratory accuracy and patient safety.	3.47	HI
Extent to which problem-solving and critical-thinking skills influenced employment.	3.39	HI
Extent to which critical-thinking skills prepared one for workplace challenges.	3.43	HI
Extent to which teamwork and collaboration skills supported employment opportunities.	3.46	HI
Extent to which leadership skills contributed to securing a job.	3.22	MI
Extent to which computer literacy provided a competitive edge in the job market.	3.36	HI
Extent to which technological proficiency enhanced performance in advanced laboratory settings.	3.33	HI
Average	3.38	HI

Legend: 3.26 - 4.00 - Highly influential (HI), 2.51 - 3.25 - Moderately influential (MI), 1.76 - 2.50 - Fairly influential (FI), 1.00 - 1.75 - Minimally influential (MMI), Weighted Mean (WM), Degree of Equivalence (DE)

Data in Table 11 revealed that the overall average weighted mean (WM) is 3.38, which is classified as Highly Influential (HI). This indicates that the skills in this category are considered crucial by graduates of Medical Laboratory Science (MLS) for securing employment.

The technical laboratory skills (e.g., use of equipment, tests, and procedures) received the highest WM, scoring 3.51, also classified as Highly Influential (HI). This emphasizes the importance of technical expertise in laboratory tasks, highlighting that proficiency in using equipment and following procedures is vital in the job market. Academic programs, such as the Bachelor of Science in Medical Laboratory Science (BSMLS), stress hands-on training with complex laboratory instruments like microscopes, centrifuges, and automated analyzers. This practical experience is essential for developing the skills needed for professional practice in clinical laboratories and for accurately processing biological samples.

The focus on technical proficiency aligns with the Philippine Medical Technology Act of 1969 (Republic Act No. 5527), which defines the practice of medical technology to include the examination of body fluids and tissues, preparation of reagents, quality control procedures, and the operation of laboratory equipment. This underscores the significance of technical skills in the profession. Additionally, the emphasis on technical proficiency in MLS corresponds closely with Human Capital Theory, which posits that investments in education and skill development enhance workforce productivity and economic growth (Ross, 2023). Laboratory professionals with strong technical competencies contribute to healthcare efficiency by ensuring accurate diagnostics and effective patient care.

Following closely are effective communication enhancing laboratory accuracy and patient safety (WM = 3.47, Highly Influential) and teamwork and collaboration skills

(WM = 3.46, Highly Influential), demonstrating the importance of interpersonal skills in providing high-quality healthcare services. Both communication and collaboration directly impact laboratory workflows and patient outcomes, making them essential qualities for employment in medical laboratory environments (Meneses-La-Riva et al., 2025).

Critical thinking skills in handling unexpected challenges (Weighted Mean = 3.43, Highly Influential) and Problem-solving and critical-thinking skills in a laboratory setting (Weighted Mean = 3.39, Highly Influential) both highlight the importance of the ability to assess situations, troubleshoot, and make informed decisions, which is highly valued by employers in the medical laboratory science field (Aziz & Tille, 2024).

Communication and interpersonal skills (WM = 3.36, Highly influential) and Computer literacy (WM = 3.36, Highly influential) received equal scores, reflecting the dual importance of effective communication and digital competence in contemporary laboratory operations. Similarly, technologically savvy skills to enhance advanced techniques (WM = 3.33, Highly influential) and ability to adapt to new technologies and protocols (WM = 3.30, Highly influential) underscore how adaptability and technological fluency are becoming increasingly vital for employability in dynamic laboratory settings.

In contrast, the factor with the lowest WM is leadership skills, which received a score of 3.22, classified as Moderately Influential (MI). While leadership skills are recognized as valuable, this score suggests that they are not considered highly influential for securing immediate employment in medical laboratory science. Entry-level roles typically prioritize technical competence, diagnostic accuracy, and operational efficiency over managerial skills. According to Baladad et al. (2024), employers emphasize practical laboratory skills and adherence to industry protocols for newly hired MLS graduates, with leadership skills becoming more relevant in advanced roles rather than in initial employment.

A systematic review by Deussom et al. (2022) emphasizes that effective workforce development depends on leadership and supportive supervision, which significantly enhance performance, motivation, and job satisfaction. In medical laboratory science, leadership skills are essential alongside technical expertise, enabling professionals to work independently, manage teams effectively, and uphold quality assurance and patient safety. Leadership training equips MLS graduates to collaborate seamlessly with healthcare teams, contribute to innovation, and transition into managerial roles where they can influence policies and drive systemic improvements (Saihati, 2023).

While leadership may not be the primary factor in securing initial employment, MLS graduates who develop strong leadership skills are more likely to advance to higher positions and positively impact workplace dynamics. Institutions should prioritize leadership development, as it enables MLS graduates to take on supervisory roles, drive innovation, and contribute to the long-term sustainability of healthcare services. Offering leadership development opportunities ensures graduates can effectively lead teams, improve healthcare operations, and maintain high-quality patient care. Leadership is essential for professional growth and the continued advancement of medical laboratory science.

Internship Experience

Table 12. Influence of Internship Experience on Employment Outcomes of MLS Graduates

Internship Experience	WM	DE
Extent of the quality of training during internship influence the ability to secure employment	3.49	HI
Extent of exposure to diverse laboratory procedures and technologies during internship influence in finding a job	3.51	HI
Significance of guidance and mentorship from internship supervisors in securing employment	3.32	HI
Extent of the reputation of the hospital or institution where the MLS graduate affect job prospects	3.29	MI
Usefulness of the practical skills developed during internship in helping secure employment	3.49	HI
Average	3.42	HI

Legend: 3.26 - 4.00 - Highly influential (HI), 2.51 - 3.25 - Moderately influential (MI), 1.76 - 2.50 - Fairly influential (FI), 1.00 - 1.75 - Minimally influential (MMI), Weighted Mean (WM), Degree of Equivalence (DE)

As indicated in Table 12, the overall average weighted mean (WM) for Internship Experience factors is 3.42, which is equivalent as Highly Influential (HI). This indicates that, on average, internship experiences significantly contribute to the employability of Medical Laboratory Science (MLS) graduates.

The factor with the highest value in this category is the exposure to diverse laboratory procedures and technologies during your internship, which has a WM of 3.51 (HI). This highlights its essential role in preparing graduates for industry-specific tasks. Supporting the findings, the study by Qubati and Tamim (2021) emphasizes the importance of internship programs as a vital bridge between academic learning and the workforce. Internships provide graduates with hands-on experience, practical skills, and industry-specific knowledge, all of which are essential for meeting employer demands and securing employment in competitive job markets. By participating in internships that focus on various procedures and technologies, graduates have the opportunity to align their academic learning with the operational demands of the workplace. This exposure directly enhances their confidence and technical readiness, making them more competitive in the job market.

The quality of training during the respondents' internship and the practical skills they developed during their internship both received a weighted mean (WM) of 3.49, classified as Highly Influential (HI). These components highlight that high-quality training and the opportunity to develop practical, job-relevant skills during internships are essential for preparing graduates for professional work. Gaining hands-on experience in laboratory settings equips graduates with the technical proficiency needed to excel in their roles and meet employer expectations.

Furthermore, guidance and mentorship from the respondents' internship supervisors received a WM of 3.32, also classified as Highly Influential (HI). This factor underscores the significance of mentorship and supervision in aiding interns' professional development. According to Arslan (2023), mentorship plays a crucial role in helping interns navigate workplace challenges, refine their skills, and gain industry insights,

ultimately shaping their career trajectories. While mentorship is valuable, it is considered a supportive influence compared to the more directly impactful technical training and practical experience.

In contrast, the factor with the lowest value is reputation of the hospital or institution where the respondents interned with a WM of 3.29 (MI). While the reputation of the institution moderately influences employment, it is less impactful compared to hands-on practical experiences and the quality of training received. This is supported by a study conducted by Nogales et al. (2020), which sent 2,848 identical CVs to 1,424 companies, varying only by the university name and whether the applicants had internship experience. The results showed that applicants from prestigious universities were 40% more likely to receive callbacks. However, having internship experience had an even stronger and more consistent impact on employer responses. This indicates that practical experience is a clearer indicator of job readiness and often outweighs the benefits of attending a well-regarded university.

Practical experience and skill development gained through internships play a crucial role in employment outcomes, often outweighing the impact of an institution’s reputation. This highlights the importance of creating academic programs that prioritize experiential learning opportunities. Therefore, academic institutions should prioritize improving the structure and quality of internship programs. This ensures that students have ample opportunities to engage with modern technologies and receive effective mentorship. By integrating strong, skills-based internship experiences into the curriculum, schools can bridge the gap between theoretical education and workplace expectations.

Professional Networking

Table 13. Influence of Professional Networking on Employment Outcomes of MLS Graduates

Professional Networking	WM	DE
Extent to which connections with mentors, professors, or alumni influenced job security.	3.35	HI
Significance of networking opportunities during seminars, conventions, and workshops in job searches.	3.25	MI
Extent to which membership in professional organizations (e.g., PAMET, PASMETH) impacted employment opportunities.	3.11	MI

Importance of support from peers and colleagues in securing employment.	3.27	HI
Extent to which the use of online professional platforms (e.g., LinkedIn) contributed to job search success.	3.05	MI
Extent to which networking opportunities at the internship facility helped secure a job.	3.26	HI
Average	3.22	MI

Legend: 3.26 - 4.00 - Highly influential (HI), 2.51 - 3.25 - Moderately influential (MI), 1.76 - 2.50 - Fairly influential (FI), 1.00 - 1.75 - Minimally influential (MMI)

As shown in Table 13, the overall average score across all factors is 3.22, which is classified as Moderately Influential (MI). This indicates the significant role that professional networking plays in securing employment. “Connections with mentors, professors, or alumni” were found to be the most influential factor, achieving the highest mean score of 3.35, categorized as Highly Influential (HI). This underscores their vital role in aiding job acquisition.

The highly influential nature of relationships with mentors, professors, and alumni highlights the important impact of professional networking on employment opportunities. Drawing on Bourdieu’s concept of social capital, these connections provide graduates with access to valuable resources, referrals, and insider opportunities, emphasizing how relational networks shape career paths (Kenton, 2024). This viewpoint aligns with Tomlinson’s Graduate Capital Model, which stresses the importance of leveraging interpersonal relationships alongside academic and cultural capital to navigate the job market (Meleti, 2024).

Networking opportunities at the internship facility received a weighted mean (WM) of 3.26, indicating a High Influence (HI). This highlights the crucial role of networking in internships, as building relationships during placements increases the likelihood of receiving job offers from the same organizations. Internships serve as effective training grounds, providing students with direct employment opportunities upon completion. Pianda et al. (2023) reinforces this idea, emphasizing that internships enable students to develop professional networks, which can lead to faster employability and an increase in job offers.

The next item, support from peers and colleagues in helping you secure employment, scored 3.27, also classified as High Influence (HI). The collaborative nature of peer networks can be crucial during the job search process, offering emotional support, professional advice, and shared job leads. This result emphasizes the importance of cultivating a strong peer network in addition to formal professional relationships.

In contrast, networking opportunities during seminars, conventions, or workshops received a WM of 3.25, which is classified as Moderately Influential (MI). These events can foster valuable professional interactions; however, their impact on employment outcomes is often less direct compared to established peer support systems or personal connections. The effectiveness of networking in these settings can vary. Moreover, the moderate influence rating could also be attributed to limited attendance from conferences and seminars for not all respondents may have had the opportunity to participate in such events, which may have affected their perception of its value. This supports the findings of Le (2022), who noted that networking behavior can improve job search outcomes, but its success largely depends on how actively and strategically individuals engage in these

interactions. Similarly, Jackson and Tomlison (2020) emphasized that access to and engagement with professional development events are often unequal, with students from underrepresented backgrounds or limited financial means less likely to participate in career-enhancing extracurriculars. In contrast, peer networks and internships tend to promote more sustained engagements that build trust, which is a crucial element in employment decisions (Fryczyńska & Ciecierski, 2020).

Moreover, membership in professional organizations (e.g., PAMET, PASMETH) scored 3.11, also classified as Moderately Influential (MI). This suggests that while being a member of these organizations can aid in networking, its immediate impact on securing employment is less pronounced. Professional associations can offer valuable resources, continuing education, and networking advantages, but the direct influence on job search success is more moderate when compared to personal and internship-based connections. According to Adebo-Adelaja et al. (2019), the perceived value of such memberships lies more in long-term professional growth, recognition, and access to industry knowledge, rather than in immediate employment outcomes. Furthermore, as Baker and Lattuca (2020) noted, the impact of professional memberships is often mediated by how actively individuals engage in the organization's activities; mere membership without active participation tends to yield minimal advantages. Therefore, while professional affiliations can support career development, they often lack the immediacy and relational trust found in internships or close peer networks.

Conversely, the role of online platforms like LinkedIn is Moderately Influential (MI) which reflects Foucault's notion of governmentality, whereby individuals are encouraged to manage their own employability through self-promotion and personal branding (Deuel, 2021). Although these platforms enhance visibility, the findings suggest that they are less effective than personal networks in directly facilitating employment. This contrast reinforces the lasting significance of human connections in meeting employer expectations and securing job opportunities.

Perceived Contributing Factors to the Employability

Quality of Training

Table 14. Influence of Quality of Training on Employability of MLS Graduates

Quality of Training	WM	DE
Extent to which internship training quality prepared one for employability.	3.67	HI
Effectiveness of firsthand internship experience in enhancing employability in the medical laboratory field.	3.59	HI
Value of mentorship received during internship in improving employability.	3.53	HI
Influence of internship training quality on job prospects.	3.47	HI
Extent to which internship training enabled application of academic	3.47	HI

Quality of Training	WM	DE
Extent to which internship training quality prepared one for employability.	3.67	HI
Effectiveness of firsthand internship experience in enhancing employability in the medical laboratory field.	3.59	HI
Value of mentorship received during internship in improving employability.	3.53	HI
Influence of internship training quality on job prospects.	3.47	HI
knowledge to real-world situations.		
Average	3.55	HI

Legend: 3.26 - 4.00 - Highly influential (HI), 2.51 - 3.25 - Moderately influential (MI), 1.76 - 2.50 - Fairly influential (FI), 1.00 - 1.75 - Minimally influential (MMI), Weighted Mean (WM), Degree of Equivalence (DE)

The results shown in Table 14 highlight that the quality of training during internship is considered highly influential by LORMA graduates in terms of their employability, receiving an overall weighted mean (WM) of 3.55. This indicates that structured training programs, particularly those with strong emphasis on practical, supervised, and competency-based learning, play a critical role in preparing students for professional roles (Qubati & Tamim, 2021). This is supported by Quinto (2019), whose correlation study found that strong laboratory performance during coursework had a direct relationship with higher internship grades, reinforcing the idea that quality hands-on training enhances students' ability to succeed in both academic and real-world environments.

The item that received the highest score (WM = 3.67) asked respondents how well their internship training prepared them for employability. This suggests a high level of satisfaction with the training received, particularly in terms of readiness for the workforce. According to Singh and Nigam (2024), the effectiveness of an internship in enhancing employability lies in the presence of key enablers such as clearly defined goals, active mentoring, and practical immersion. Their study emphasized that such enablers contribute to the development of both technical skills and professional attributes—qualities that employers prioritize when hiring.

The second-highest item, concerning firsthand experience (WM = 3.59), underscores the value of experiential learning. Interns recognized that hands-on practice with real laboratory procedures significantly enhanced their understanding of theoretical concepts and boosted their confidence in performing tasks independently. Experiential Learning Theory by Kolb and Kolb (2019) explained that experiential learning builds core traits such as adaptability, critical thinking, and attention to detail—traits considered essential in clinical laboratory practice. They emphasized that mere classroom instruction, while foundational, must be supplemented with direct experience to ensure full skill acquisition.

Mentorship during internship, rated with a WM of 3.53, was also seen as a vital aspect of training. This supports the findings of Mpofu (2024), who identified mentorship as a cornerstone of professional development in medical laboratory settings. Their research showed that interns who received constructive feedback and career guidance

from experienced mentors were more likely to develop professional confidence, work ethic, and effective communication skills—all of which contribute to long-term employability.

The influence of training on job prospects and the application of academic knowledge in real-world settings, both rated at 3.47, further affirms the practical relevance of internship programs. Chen et al. (2022) emphasized that bridging theory and practice is essential, especially in highly technical fields like medical laboratory science. Their study found that students who engaged in integrated clinical experiences were more adept at problem-solving and adapting theoretical principles to laboratory procedures, increasing their appeal to employers. Similarly, Saong et al. (2023) explored how curriculum design in health sciences, including BSMT/BSMLS programs, must align with internship training to ensure that students acquire job-ready competencies. They argued that alignment between academic content and internship activities is critical to addressing the skill gap between education and employment.

The broader value of structured training is further supported by Bayil-Oguzkan and Ozaslan (2021) found that structured internship programs significantly enhanced the skills and workplace readiness of medical laboratory technicians, demonstrating the importance of consistent, well-supervised training. Similarly, Sua (2022) emphasized that internships contribute to both technical expertise and real-world awareness, playing a crucial role in long-term employability and improving healthcare strategies.

Williams and Brown (2019) noted that even with limited senior staff support, hands-on experience with real equipment in clinical settings significantly boosted technical accuracy and self-confidence, highlighting the value of exposure in developing workplace competence.

In summary, LORMA graduates regarded internship training as a key factor in their employability, valuing aspects such as preparedness, mentorship, hands-on experience, and job relevance. The literature supports that effective internships enhance theoretical learning and provide essential work experience. Therefore, aligning internship design with academic and industry expectations is crucial for maintaining high employability rates. Additionally, continuous feedback from both students and employers can further optimize internship programs, ensuring they effectively meet the evolving demands of the healthcare industry and align with academic objectives.

Internship Facility Affiliation

Table 15. Influence of Internship Facility Affiliation on Employability of MLS Graduates

Facility Where Internship is Affiliated	WM	DE
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Importance of internship facility's reputation in enhancing employability.	3.49	HI
Impact of advanced equipment and technology availability on employability.	3.57	HI
Contribution of internship facility's work environment to employability readiness.	2.53	MI
Influence of case and sample diversity on practical skills and job readiness.	3.54	HI
Average	3.53	HI

Legend: 3.26 - 4.00 - Highly influential (HI), 2.51 - 3.25 - Moderately influential (MI), 1.76 - 2.50 - Fairly influential (FI), 1.00 - 1.75 - Minimally influential (MMI), Weighted Mean (WM), Degree of Equivalence (DE)

The results of the study demonstrated that the characteristics of the internship facility are a crucial factor influencing the employability of LORMA graduates. With an overall weighted mean (WM) of 3.53, the responses reflect that this domain is considered highly influential. This indicates that the environment in which students complete their practical training—including technological resources, institutional reputation, work culture, and the diversity of cases they encounter—significantly shapes their readiness to enter the medical laboratory workforce (Quirós & Barroso, 2020). Each component of this category contributes uniquely to building competence, confidence, and a professional identity aligned with labor market expectations.

The availability of advanced equipment and technology within internship facilities emerged as the highest-rated item, with a WM of 3.57, signifying that students deeply value exposure to modern, state-of-the-art tools and automated systems during their training. In a field like MLS, where diagnostic techniques and tools are constantly evolving, familiarity with current technologies is essential for graduates to remain competitive. The Rayhan Group of Institution (2024) program has demonstrated that practical training using updated equipment enhances not only technical abilities but also critical thinking and diagnostic accuracy. Graduates trained in technologically advanced environments are better equipped to contribute immediately to clinical laboratory workflows, thus increasing their employability in both local and international contexts.

The diversity of cases and samples handled during internships also received a high mean rating of 3.54, indicating that a broad and varied range of clinical exposures significantly contributes to student preparation and skill development. Diverse exposure allows interns to refine their interpretative abilities, adapt to complex situations, and gain familiarity with both routine and specialized testing procedures. According to Villena (2025), students who experience a limited variety of cases often show reduced competency in real-world applications, while those with greater exposure demonstrate improved confidence and decision-making skills. Rangel (2025) supports this view, asserting that graduate competence in medical laboratory diagnostics is closely tied to the variety and complexity of cases encountered during internships. Additionally, the American Society for Clinical Laboratory Science (2021) highlights the urgent need for well-trained graduates who can manage diverse laboratory challenges, suggesting that practical experience with various case types is essential in addressing workforce shortages and ensuring healthcare quality.

The reputation of the internship facility was also rated as highly influential, with a WM of 3.49. This finding suggests that students recognize the advantage of being associated with well-regarded hospitals or diagnostic laboratories during their training. Reputable internship sites often signal credibility and competence to potential employers, thus enhancing graduates’ marketability. Hassouna and Zaazou (2024) reported that both students and recruiters perceive company brand names as powerful signals of employability, with well-known institutions acting as trust markers in the labor market. These affiliations not only shape external perceptions but also improve internal self-perceptions, as students who intern at prestigious institutions tend to report greater confidence in their job prospects. Ebner et al. (2021) found that students who experienced high-quality internships, often associated with reputable facilities, reported higher self-perceived employability and lower anxiety when entering the job market. Moreover, the work of Galbraith and Mondal (2023) corroborates this view, indicating that applicants with internships at prominent organizations receive more job interview invitations and offers, acting as a “door opener” in competitive hiring environments.

In contrast, the work environment within internship facilities received a lower, though still significant, mean rating of 2.53, categorized as moderately influential. While not rated as highly as other aspects, this factor remains essential in shaping interns’ professional behavior, adaptability, and readiness for real-world practice. A positive work environment often entails clear guidance, professional mentorship, supportive interpersonal dynamics, and collaborative team settings. Schill (2020) emphasizes that the professional socialization of early-career MLS professionals is deeply influenced by the work environment, especially in terms of building confidence and workplace identity. The University of Exeter’s “Pathways to Scientific Laboratories” program (2025) also illustrates how structured and interactive lab environments during internships improve graduate outcomes by increasing their preparedness for full-time roles. Furthermore, a 2021 article by Odegard in *Clinical Lab* revealed that laboratories offering engaging and growth-oriented internship environments not only help shape skilled interns but also contribute to long-term staff development and retention.

In summary, the internship facility has a significant impact on graduate employability. Advanced technology and diverse clinical exposure are key drivers of skill development, while the institution’s reputation serves as an important asset in the job market. Although the work environment received a slightly lower rating, it still plays a crucial role in shaping the professionalism and confidence of future MLS practitioners.

Personal Attributes Contributing to the Employability

Personal Traits and Soft Skills

Table 16. Influence of Personal Traits and Soft Skills on Employability of MLS Graduates

Personal Traits and Soft Skills	WM	DE
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Influence of personal traits (e.g., confidence, initiative, work ethic) on securing a first job as an MLS graduate.	3.81	HI
Extent to which interpersonal skills (e.g., communication, teamwork, empathy) affected collaboration in a laboratory setting.	3.68	HI
Contribution of adaptability, resilience, and professionalism to career development.	3.71	HI
Extent to which leadership qualities (e.g., decision-making, accountability, problem-solving) influenced consideration for leadership roles.	3.67	HII
Impact of personality traits (e.g., perseverance, attention to detail, commitment) on job satisfaction and career stability.	3.71	HI
Average	3.72	HI

Legend: 3.26 - 4.00 - Highly influential (HI), 2.51 - 3.25 - Moderately influential (MI), 1.76 - 2.50 - Fairly influential (FI), 1.00 - 1.75 - Minimally influential (MMI), Weighted Mean (WM), Degree of Equivalence (DE)

The result of the study shown in Table 16 reveals the overall weighted mean for all personal trait indicators was 3.72, placing them in the “Highly Influential” category. This confirms that personal characteristics are key determinants of employability and career development for MLS graduates from Lorma Colleges. Employers place significant emphasis on a blend of technical competence and personal traits such as confidence, adaptability, interpersonal skills, and perseverance, as indicators of a graduate’s potential for long-term success in the profession.

Certain personal traits, particularly confidence, initiative, and work ethic, played a crucial role in helping graduates secure their first job. These attributes, with a weighted mean (WM) of 3.81, were identified as key differentiators during the hiring process. Employers tend to prioritize applicants who exhibit enthusiasm, self-motivation, and a dependable work ethic. These qualities are often perceived as indicators of a candidate’s potential to thrive in a professional setting, demonstrating proactivity in addressing challenges and a commitment to producing high-quality work. The findings suggest that graduates possessing these traits are more likely to stand out in a competitive job market, thus increasing their chances of securing employment sooner.

Traits related to adaptability, resilience, and professionalism also emerged as highly influential, with a weighted mean of 3.71. These qualities reflect a graduate’s ability to adjust to workplace demands, navigate institutional changes, and pursue continuous improvement. A study from Leadbeatter et al. (2023) found that employers value candidates who can remain flexible and composed in the face of challenges and who uphold professionalism in all aspects of their work. This emphasizes the importance of fostering personal growth and upholding high standards, both vital for career advancement in the evolving field of medical laboratory science (Burke & Scurry, 2019).

Similarly, perseverance, attention to detail, and commitment were recognized as significant contributors to job satisfaction and career stability, also earning a weighted mean of 3.71. Saong (2023) discusses that the graduates who exhibit perseverance are more equipped to overcome workplace challenges and remain focused on long-term goals. Attention to detail ensures the accuracy and reliability of laboratory results, which is vital for patient care and safety. Meanwhile, commitment reflects a graduate’s

dedication to the profession, fostering pride, motivation, and long-term fulfillment in their work.

Interpersonal skills, including communication, teamwork, and empathy, were also found to be crucial in laboratory settings. With a weighted mean of 3.68, these skills are essential for building respectful and collaborative relationships within clinical environments. In healthcare, where coordination and cooperation are integral to patient outcomes, graduates with strong interpersonal skills are more likely to integrate smoothly into multidisciplinary teams and contribute effectively to organizational goals (Lonogan, 2020).

Lastly, leadership qualities such as decision-making, accountability, and problem-solving received a weighted mean of 3.67. Although ranked lowest among the trait categories, these qualities are still considered “highly influential” in graduates’ readiness to take on greater responsibilities. Employers recognize the value of leadership potential even at the entry level, as these traits support both individual performance and the strategic direction of the organization (Alsheikhy et al., 2021).

In conclusion, the findings emphasize the importance of personal traits in fostering career readiness and job performance in Medical Laboratory Science. Characteristics such as responsibility, adaptability, strong work ethic, communication, and professionalism enable graduates to meet workplace demands, function efficiently within clinical settings, and build professional relationships. Graduates who develop these attributes during academic training are better positioned to pursue career advancement and achieve long-term success in the healthcare sector. Thus, promoting the development of personal traits through mentorship, reflective learning, and practical experiences is essential. This approach enhances employability and supports the sustained professional growth of future practitioners.

Career Growth

Table 17. Influence of Career Growth Opportunities on Employability of MLS Graduates

Career Growth	WM	DE
Impact of continuous self-development (e.g., communication, critical thinking, problem-solving) on employment opportunities.	3.70	HI
Extent to which additional certifications and advanced training	3.63	HI

enhanced adaptability and competitiveness.		
Influence of lifelong learning and personal growth on leadership potential and career advancement.	3.64	HI
Contribution of soft skills (e.g., teamwork, time management, adaptability) to job performance and professional development.	3.62	HI
Effect of self-improvement in emotional intelligence, networking, and conflict resolution on long-term career progression.	3.63	HI
Average	3.64	HI

Legend: 3.26 - 4.00 - Highly influential (HI), 2.51 - 3.25 - Moderately influential (MI), 1.76 - 2.50 - Fairly influential (FI), 1.00 - 1.75 - Minimally influential (MMI), Weighted Mean (WM), Degree of Equivalence (DE)

The findings of the study highlighted the critical role of continuous self-development in shaping the career growth of medical laboratory science graduates. With an overall weighted mean (WM) of 3.64, this domain is interpreted as Highly Influential (HI). This indicates a strong agreement among respondents that personal initiatives aimed at improving both technical and soft skills significantly impact employability, adaptability, and career progression. Self-development appears to be a central driver for professional success in an increasingly competitive and evolving workforce.

Among the components examined, the enhancement of communication, critical thinking, and problem-solving skills received the highest weighted mean of 3.70, also interpreted as Highly Influential. This suggests that respondents believe these core skills greatly contribute to their ability to secure employment and perform effectively in their roles. According to Gill (2025), new medical laboratory professionals need a mix of technical skills and communication strategies to succeed in their careers. These competencies are fundamental in interpreting data, making informed decisions, and collaborating within multidisciplinary teams—making them indispensable in any healthcare setting.

Following closely is the commitment to lifelong learning and personal growth, which obtained a weighted mean of 3.64. This finding reflects a strong recognition of the importance of continuous education in building leadership capacity and facilitating career advancement. Krishnan (2024) emphasizes that lifelong learning plays a pivotal role in career development by helping individuals stay competitive and adapt to technological changes in their field. Lifelong learning enables professionals to keep pace with technological developments and shifting industry standards, thereby remaining relevant and prepared for higher-level responsibilities.

The impact of acquiring additional certifications and undergoing advanced training also garnered a weighted mean of 3.63, signifying a belief that these efforts enhance one's competitiveness and capacity to adapt to new challenges. Certifications often serve as formal recognition of specialized expertise and provide individuals with a competitive edge in job applications and promotions, especially in specialized or high-demand roles. Krishnavika (2024) further emphasized that professional certifications not only validate an individual's skill set but also contribute significantly to career advancement by improving job security, increasing earning potential, and expanding global employability. The study highlighted how certified professionals are often perceived as more credible and committed, making them more attractive to employers seeking qualified and adaptable talent in a rapidly evolving workplace.

Also receiving a weighted mean of 3.63 was the area of self-improvement in emotional intelligence, networking, and conflict resolution. This suggests that respondents acknowledge the influence of interpersonal growth in shaping long-term career outcomes. Professionals who excel in managing emotions, fostering relationships, and navigating workplace conflicts are often more resilient, collaborative, and effective leaders—qualities essential for sustained success in dynamic work environments. This aligns with the findings of Urquijo, Extremera, and Azanza (2019), who emphasized that emotional intelligence significantly contributes to both intrinsic and extrinsic career success, even beyond personality traits. Their study reinforces the idea that enhancing one’s emotional intelligence can lead to greater job satisfaction, improved leadership potential, and overall career advancement.

Lastly, the influence of soft skills such as teamwork, time management, and adaptability registered the lowest mean among the indicators, at 3.62, but still within the Highly Influential range. This indicates that while these skills were slightly less emphasized compared to others, they are still considered crucial for professional development and job performance. The ability to work well with others, meet deadlines, and respond flexibly to changing circumstances remains integral to maintaining productivity and meeting organizational goals. Parveen and Sharma (2023) emphasized that soft skills such as communication, collaboration, and adaptability significantly enhance an individual’s workplace effectiveness and contribute to overall career advancement.

Similarly, the National Soft Skills Association (2025) reported that soft skills account for up to 85% of job success, far outweighing technical expertise. Despite their critical role, these skills are often underdeveloped due to limited training investments, creating a disconnect between employer expectations and employee preparation. These findings reaffirm that even when perceived as less prominent, soft skills remain essential building blocks of professional success and organizational resilience.

In summary, all components of self-development were rated as highly influential to career growth, with communication and critical thinking skills identified as the most impactful. These results underscore the multifaceted nature of professional advancement, highlighting that both technical capabilities and interpersonal strengths are necessary for long-term success. Educational institutions and professional training programs are thus encouraged to emphasize holistic development strategies to prepare graduates for the realities of the modern workforce.

Perceived Areas for Improvement in the MLS Program

Tables 18, 19, and 20 presented the results of the thematic analysis of open-ended responses gathered from graduates regarding their suggestions for improving the Medical Laboratory Science (MLS) program at LORMA Colleges. The responses were organized into several thematic categories based on common ideas and concerns: laboratory equipment and facilities, practical and clinical training, and academic and curriculum development.

Table 18. Enhancement of Laboratory Facilities and Equipment

Sub-Theme	Number of Responses
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Modernization of Laboratory Equipment	17
Increase Quantity and Variety of Equipment	12
Safety and Maintenance of Laboratory Spaces	10

Modernization of Laboratory Equipment

Modern laboratory infrastructure has become indispensable in ensuring that MLS students are adequately prepared for the technical demands of clinical practice. According to Kalstein (2023), incorporating automated and modern diagnostic equipment in educational settings enhances not only training accuracy but also simulates real-life laboratory operations, making the transition to professional environments smoother. This insight reflects the call for improvement by one participant who stated, *“Invest in modern laboratory equipment to match current industry standards.”* The respondent’s appeal underscores the belief that up-to-date equipment is not a luxury but a necessary component of industry-aligned learning.

In a related observation, another respondent emphasized, *“Buy more updated lab equipment so students can learn using tools found in real hospitals.”* This view is echoed in the findings of Ghasemi et al. (2022), who highlighted how aging or non-functional laboratory instruments hinder practical training and create a disconnect between academic preparation and clinical practice. Their research confirms that when students are not exposed to hospital-grade equipment during their education, they are less confident and less competent when they transition into the workplace. Thus, the gap between what is taught and what is practiced can only be bridged through modernization.

A participant also offered a more practical concern: *“Replace outdated or non-functional equipment to ensure reliability.”* This aligns with the conclusions of Wang (2024), who proposed that institutions adopt a whole life cycle approach to equipment management. Regular assessments, maintenance, and replacement schedules are crucial to ensuring functionality and pedagogical value. Non-functioning machines not only interrupt instruction but also demotivate learners who are eager to build their technical proficiency through hands-on application.

Beyond the direct respondent feedback, the literature consistently supports the idea that current and functioning laboratory tools play a pivotal role in student engagement and competency development. Pareek (2019) emphasized that students in well-equipped laboratories demonstrate higher academic performance and stronger attitudes toward scientific inquiry. Furthermore, Restiana and Djukri (2021) argued that integrating up-to-date equipment into the curriculum boosts students’ critical thinking and technical skills, which are essential in the high-stakes environment of clinical diagnostics.

Lastly, Medilab Exports (2025) pointed out that real-world simulations using modern instruments help students internalize complex procedures and improve their diagnostic accuracy. This not only supports students’ technical skill-building but also encourages independent learning and confidence in professional settings. The evidence from both student perspectives and the reviewed literature makes a compelling case: investing in modern laboratory equipment is an urgent and non-negotiable aspect of training future medical laboratory professionals.

Increase Quantity and Variety of Equipment

Access to a sufficient quantity and variety of equipment was another significant concern among respondents. One participant suggested, *“Invest in more laboratory equipment so that students may have more skill.”* This reflects a broader desire for increased hands-on learning opportunities. The more equipment available, the more students can engage with practical tasks, allowing them to refine their skills and prepare for a variety of clinical scenarios. According to Cheqroom (2024), expanding laboratory inventory enhances student engagement, retention, and career preparation by promoting problem-solving and critical thinking skills, crucial competencies for real-world clinical practice.

Participants also advocated for ensuring *“fair access to equipment and equal opportunities to use it”* as some respondents reported that limited resources hindered their learning. This feedback highlights the importance of equitable access to laboratory tools. Without fair distribution, some students may be unable to practice essential skills, which could lead to disparities in learning outcomes. This is consistent with the findings of Neji et al. (2024), who reported that inequitable access to laboratory equipment negatively affects student performance, particularly in developing essential hands-on competencies. Similarly, The National Academies Press (2020) emphasized that equal access to laboratory tools not only improves understanding of scientific concepts but also strengthens collaboration and interest in science learning. They recommended the implementation of structured scheduling systems to guarantee equitable opportunities for all students. The World Health Organization (2021) outlined laboratory quality standards, emphasizing the importance of efficient scheduling, fair access to equipment, and collaboration between departments to optimize laboratory training.

Further, the request for *“more lab equipment”* underlined the need for an expanded inventory to support the growing demands of practical training. As medical technologies evolve, so must the equipment used in laboratories. With more tools available, students can engage in a wider range of diagnostic procedures, enhancing their readiness for clinical practice. This need is underscored by Timbasal-Nuevo (2024), who found that deficiencies in laboratory equipment impair educators’ ability to conduct hands-on experiments, in turn limiting students’ comprehension of key scientific principles. Timbasal suggests that institutions implement a comprehensive inventory management system to ensure regular updates and maintenance of laboratory tools.

Safety and Maintenance of Laboratory Spaces

Safety was a priority in the responses, with participants emphasizing the need for updated safety gear. One participant recommended, *“Equip laboratories with updated safety gear, including fire extinguishers, eyewash stations, PPE dispensers, and spill kits.”* The importance of safety in laboratory settings cannot be overstated, as medical laboratory environments can pose significant risks if safety protocols are not followed. Well-maintained safety gear fosters a culture of responsibility and care, which is crucial for students as they prepare for high-stakes environments in hospitals and clinics. This concern is echoed in the study by Schröder et al. (2021), which compared laboratory safety attitudes and practices across academic, government, and industry researchers. The study found that consistent access to safety training and equipment significantly improved

researchers’ compliance and risk management behaviors, reinforcing the need for rigorous safety standards in educational laboratories.

The importance of regularly updating reagents was also highlighted by participants who suggested, *“Update old reagents regularly to make sure tests yield accurate and reliable results.”* Using fresh reagents ensures the accuracy and reliability of diagnostic tests, which is fundamental for students to develop a solid understanding of laboratory procedures. Outdated reagents can produce unreliable results, undermining the value of practical training. Williams (2019) supports this in his research on reagent validation, emphasizing that reagent quality directly affects experimental reproducibility, which is crucial in both clinical and academic laboratory settings.

Finally, participants pointed out the need to improve the physical environment of the laboratory to enhance learning. As one participant noted, *“Improve laboratory room for learning and development of the students.”* An optimized learning environment, with well-organized and ergonomically designed spaces, contributes to more effective training. Well-maintained infrastructure supports safety and operational efficiency, both of which are essential in simulating real-world laboratory conditions and developing student competence.

Table 19. Strengthening Practical and Clinical Training

Sub-Theme	Number of Responses
Hands-On and Manual Skill Development	17
Internship Experience and Real-World Exposure	12
Simulation and Emergency Scenarios	10

Hands-On and Manual Skill Development

The importance of prioritizing manual skills was a consistent concern among participants, particularly in relation to core laboratory procedures such as complete blood count (CBC) computation, blood smearing, and Gram staining. One respondent emphasized, *“Strengthen the training for manual skills like manual CBC counting, blood smearing, and Gram staining,”* reflecting a perceived gap in foundational techniques that remain vital in both manual and automated laboratory environments.

This concern underscores a broader issue in laboratory education: while automation has streamlined many diagnostic processes, manual methods still provide critical diagnostic insights. Fathima et al. (2019) highlighted that although automated systems enhance efficiency, manual techniques are indispensable for interpreting complex cases and identifying morphological abnormalities. Similarly, Vitak (2022) emphasized the clinical importance of manual differential counts, particularly in detecting subtle hematologic changes that automated analyzers may overlook.

The disconnect between academic instruction and clinical expectations was a recurring theme. A clinical supervisor respondent noted, *“As a staff supervising interns, one thing I observe is that they don’t know how to perform and compute for manual CBC and cell count,”* revealing a gap between theoretical learning and practical competency. Bridging this gap requires experiential learning strategies. Kline et al. (2021) argue that hands-on learning not only enhances technical proficiency but also cultivates essential soft skills such as attention to detail, critical thinking, and confidence. Iyamuremye et al. (2023) further reported that students who engaged in regular, lab-based practical sessions demonstrated higher academic achievement and deeper understanding of core concepts.

Another participant recommended, *“Increase hands-on lab activities instead of focusing too much on lectures,”* emphasizing the need for a curriculum that strikes a balance between theory and practice. Research by Shana and Abulibdeh (2020) supports this perspective, showing that students retain complex scientific knowledge more effectively when it is reinforced through practical application.

To ensure equitable learning opportunities, several respondents advocated for additional support measures such as make-up lab sessions and refresher workshops during semester breaks. These supplementary strategies were seen as vital for reinforcing skills, maintaining learning continuity, and addressing individual learning needs—especially for students who may have fallen behind due to limited access or scheduling conflicts.

Internship Experience and Real-World Exposure

Field experience through internships emerged as a crucial area for development. One participant urged, *“Continue to deploy students to tertiary hospitals for their internship program,”* reflecting the value of real-world exposure in high-level clinical environments. Yang et al. (2025) emphasized that immersion in actual hospital settings significantly improves students’ adaptability and readiness for post-graduate employment. Practical exposure allows students to engage with diverse diagnostic technologies and workflows, enriching their professional experience. This is further supported by Turner (2025), who highlighted that internships in clinical diagnostic labs not only provide essential hands-on experience but also enhance employability by bridging the gap between theory and practice.

Another respondent recommended, *“Expose MLS students to different hospital settings, perform lab tests, handle instruments and equipment.”* While graduates appreciated the hospital assignments, many advocated for more diverse placements across different hospital laboratories to gain broader and more comprehensive clinical experience. They emphasized the need for direct participation in laboratory testing, operation of diagnostic instruments, and supervised handling of real patient specimens. These suggestions reflect a clear demand for more practical and meaningful clinical training. This is supported by Tayade and Latti (2021), who found that early and varied clinical exposure fosters adaptability and enhances students’ preparedness for real-world roles in healthcare settings, effectively bridging the gap between academic instruction and professional responsibilities. Similarly, Britz et al. (2022) demonstrated that the use of simulated or real patients in medical education significantly improves the acquisition of essential clinical competencies, particularly in communication and decision-making within healthcare contexts.

Furthermore, a respondent suggested, *“I would suggest that the MLS program of LORMA Colleges allow the students to explore more hospitals during their internship.”* This reflects a desire for broader institutional partnerships, which could offer exposure to specialized departments such as microbiology, molecular diagnostics, or hematology. Rivo (2024) noted that collaborations between medical schools and hospitals expand students’ access to such specialized units, enhancing the quality of their training. Similarly, Plessas et al. (2024) argued that community-engaged healthcare education not only provides technical experience but also builds empathy and social accountability, especially when students are placed in underserved or diverse clinical environments. Furthermore, this aligns in the study of Heidari et al. (2023) and Patel (2022), both of whom found that experiential learning in multiple clinical environments enhances critical thinking, professional adaptability, and decision-making. Isabel (2019) also emphasized that students placed in varied hospital departments become more effective team players and are better prepared for the dynamics of real patient care. Lastly, Liu et al. (2022) demonstrated that early and varied clinical exposure improves diagnostic accuracy and professional behavior. This further supports the call for LORMA Colleges to strengthen and diversify its hospital affiliations, ensuring comprehensive and competency-based MLS training for all students.

Simulation and Emergency Scenarios

To strengthen clinical readiness and technical competence, several respondents recommended the integration of simulation-based learning and troubleshooting protocols into the MLS curriculum. One suggested, *“Include simulation of handling STAT (emergency) samples to teach time management.”* This aligns with the findings of Grant & Davis (2020), who demonstrated that simulation-based learning enhances decision-making, time-management, and clinical competency in medical laboratory education. Similarly, Alinier & Sonesson (2025) emphasized that simulations significantly improve emergency preparedness and disaster response, making students more effective under pressure.

Another respondent advised, *“Create opportunities to simulate real laboratory environments inside the school,”* emphasizing that structured simulations can replicate hospital workflows and technical demands. This recommendation is supported by Webb et al. (2022), whose study found that simulation training fosters teamwork, communication, and problem-solving skills crucial in high-stakes laboratory settings. Makransky et al. (2019) further found that students who engaged in simulated laboratory environments reported higher confidence, technical proficiency, and stronger retention of skills—factors vital to professional readiness.

Lastly, a respondent emphasized the importance of preparedness by stating, *“Teach students how to respond when machines malfunction, or results are inconsistent.”* This feedback highlights the need to integrate troubleshooting protocols into MLS training. Improve Medical (2025) reported that students trained in troubleshooting exhibited greater diagnostic accuracy and stronger equipment maintenance skills. Similarly, Forsdyke (2020) noted that incorporating proactive troubleshooting strategies minimizes laboratory errors and enhances overall efficiency.

Together, these perspectives and studies present a compelling case for embedding simulation-based training and troubleshooting exercises into the MLS curriculum. They

not only mirror real-world clinical demands but also equip students with the competencies necessary to function effectively in dynamic and high-pressure laboratory environments.

Table 20. Academic and Curriculum Development

Sub-Theme	Number of Responses
Curriculum and Instructional Design	6
Board Exam and Certification Readiness	5
Student Support and Faculty Development	4

Curriculum and Instructional Design

Incorporating mentorship within the curriculum was a recurring recommendation from respondents, as expressed in the statement: *“Incorporate mentorship opportunities within the curriculum to guide students through real-world clinical applications and bridge the gap between theory and practice.”* Mentorship plays a pivotal role in shaping the professional and personal development of MLS students. Roussakis (2022) emphasized that structured mentorship fosters leadership, builds confidence, and facilitates smoother transitions into clinical environments. Likewise, American Society for Clinical Laboratory Science (2025) found that mentorship enhances students’ career development and practical skills by providing valuable networking and guidance opportunities. These findings support the inclusion of formal mentorship systems in MLS curricula to reinforce clinical readiness and professional identity formation.

Another important improvement suggested was: *“Enhance the curriculum by integrating interactive teaching methods, such as case-based learning and group discussions, to encourage critical thinking and problem-solving skills.”* This aligns with current research emphasizing the effectiveness of active learning strategies in medical education. Verma et al. (2021) found that interactive teaching improves engagement, retention, and comprehension among students, leading to stronger academic outcomes. Burgess et al. (2020) further supported this, noting that case-based and peer-teaching approaches allow students to apply theoretical knowledge in practical scenarios, fostering critical thinking. These insights underline the need for medical laboratory programs to move beyond traditional lectures and adopt dynamic instructional techniques that equip students to face real clinical challenges.

Lastly, participants stressed the value of continuous assessment through structured evaluations, as reflected in the recommendation: *“Include more structured evaluations and feedback mechanisms to help students track their progress and receive guidance on improving their practical skills and knowledge.”* Feedback is critical to student growth, particularly in laboratory-based disciplines. Liao et al. (2025) reported that frequent, structured evaluations such as OSCEs (Objective Structured Clinical Examinations) enhance student competence and allow them to identify specific areas for improvement. Burgess also emphasized that meaningful feedback bridges the gap between current performance and expected outcomes, enabling students to make informed adjustments to

their learning. This supports the integration of systematic feedback loops and performance evaluations within MLS education to support continuous improvement.

Board Exam and Certification Readiness

The effectiveness of board exam preparation is a critical factor in the success of MLS students, both for national licensure (e.g., PRC) and international certifications. As emphasized by a respondent, *“Offer review classes and mock board exams to prepare students for PRC licensure as well as international certifications.”* This strategy is crucial in reducing test anxiety and improving students’ familiarity with exam structure and content. Al-Sheikh, Albaker, and Ayub (2022) provided compelling evidence in support of this approach. Their study at a Saudi medical college demonstrated that mock medical licensure exams significantly improve the performance of graduates by enhancing familiarity with exam structure and content. Students who took mock exams prior to the actual licensure test showed statistically higher success rates, suggesting that exposure to exam simulations allows students to develop better test-taking strategies and boosts their confidence. Therefore, regularly conducted review classes and mock board exams are not only useful for academic reinforcement but also serve as vital tools in preparing students for high-stakes professional evaluations.

Moreover, one respondent recommended the need to *“Integrate comprehensive review sessions and mock board exams into the regular curriculum, covering all major subjects such as Hematology, Clinical Chemistry, Microbiology, Blood Banking, and Histopathology, to ensure consistent preparation throughout the academic year.”* Integrating these sessions throughout the program ensures that review is not rushed or crammed into the final semester but is instead scaffolded in a way that aligns with each course’s learning outcomes. According to Thomas and Alexander (2021), curriculum-integrated review sessions and early identification of struggling students were strong predictors of board exam success. This indicates that when review mechanisms are part of the standard instructional design, students are better able to retain information, monitor their own progress, and address weak areas early on. Supporting their suggestions, Heretape (2024) indicated that structured preparation programs are key to helping students succeed in board exams and feel more confident in their knowledge. The study suggests that incorporating mock board exams and dedicated review sessions earlier in the program would better prepare students and reduce stress as they approach graduation. Continuous review, aligned with core subject matter, also reflects real-world expectations where a broad and integrated knowledge base is essential for safe and effective clinical practice.

Another crucial enhancement supported by respondents is to *“implement board exam preparation programs like mock exams and mentoring to help students perform well on the licensure exam.”* In addition to structured testing, mentorship provides personalized guidance and emotional support, both of which are essential during high-pressure periods like licensure preparation. Faculty mentors can offer tailored study plans, clarify complex concepts, and guide students through practical concerns such as time management and stress coping strategies. Brown et al. (2015) emphasized the importance of timely exam preparation, stating that *“a time lapse between graduation and the Board of Certification exam negatively impacts performance.”* This suggests that delays can lead to significant knowledge attrition, weakening students’ chances of passing certification

exams. Thus, a mentorship system, alongside mock exams, ensures that students are not only academically ready but also emotionally prepared and continuously engaged with the material.

In summary, offering structured review classes, embedding them throughout the curriculum, and incorporating mentorship programs are well-supported by empirical evidence and stakeholder insight. These strategies reinforce academic content, enhance test-taking confidence, and help students develop the critical thinking and endurance required for success in both local and international certification exams. Adopting these improvements will contribute to producing highly qualified, exam-ready graduates who are confident in their knowledge and competent in professional settings.

Student Support and Faculty Development

To ensure the holistic development and success of MLS students, support structures must address both academic guidance and mental well-being. Many respondents expressed the need to improve institutional support systems through faculty development and psychological assistance. One respondent recommended, *“Offer mental health and academic counseling specifically for MLS students, as the course is highly demanding and can cause burnout.”* This reflects the high-stress nature of the program and a growing recognition that psychological well-being is essential for academic performance and personal resilience.

Benedicto et al. (2023) underscore this concern by showing how academic challenges and psychological distress, particularly during the pandemic, negatively affected college students' performance. Their findings emphasize the necessity of mental health services tailored to specific academic programs like MLS. Supporting this, Iqra (2024) noted that mental health support is essential in alleviating stress and preventing burnout, which in turn enhances students' academic outcomes. Accessible and confidential counseling services empower students to manage their emotional well-being, cope with academic pressure, and maintain a balanced lifestyle.

Furthermore, Madigan et al. (2024) conducted a systematic review and meta-analysis on student burnout interventions. They concluded that structured mental health support programs, such as mindfulness training and cognitive behavioral therapy (CBT), are highly effective in improving student well-being and academic engagement. Similarly, Batucan et al. (2024) revealed that the heavy academic workload in STEM and medical-related courses contributes significantly to mental strain. These findings strongly reinforce the need for proactive and integrated psychological support systems within the MLS curriculum to sustain student motivation and success.

Equally important is the role of qualified and supportive faculty members. Some students suggested hiring more instructors with strong clinical experience and practical knowledge to provide relevant and updated training. A common suggestion was, *“Hired instructors must also be professional and are knowledgeable enough for the program.”* Another echoed this, stating that *“Accessible academic and mental health support [is needed] to help students cope with the demands of the program.”* These responses reflect the dual importance of content expertise and student-centered teaching in maintaining academic quality and student satisfaction. Rehman et al. (2024) support this by reporting that structured mentorship enhances faculty-student relationships, boosts student engagement, and contributes to academic motivation. Their study also found that

mentorship positively affects students' sense of belonging and their ability to navigate complex clinical environments—key outcomes in a demanding field like MLS.

In alignment with this, Mubuke et al. (2020) found that institutional support for mentorship leads to improved academic experiences, especially when delivered by faculty with hands-on clinical expertise. These instructors are more likely to teach using current, practical methods that mirror real-world clinical environments. Moreover, Hill et al. (2022) demonstrated that formal mentorship initiatives, particularly one-on-one and group-based models, improve career satisfaction and resilience among students and faculty alike. They emphasized that longitudinal mentorship—extending across academic coursework and internships, fosters critical qualities in students such as reflective thinking, confidence, and adaptability.

Conclusion

Based on the results, the following conclusions were formulated:

1. The study highlighted the academic background of LORMA Colleges' BMLS graduates (2021–2024), with 100% holding a Baccalaureate degree and 45.89% from the Class of 2024. Most had GWAs between 2.25–2.75 and board scores of 77%–82%, indicating satisfactory academic performance. This suggested a need to enhance academic support for improved outcomes. The data implicated that while some of the graduates achieved excellent outcomes, the majority of them performed within a satisfactory range. These results indicated the need for further strengthening of academic support and performance evaluation to gain improved overall academic achievement.
2. Employment data demonstrated the BMLS program's strong alignment with industry needs. With an overall employment rate of 99.32% and 91.74% working as Medical Technologists or in clinical laboratories, the curriculum effectively prepares students for healthcare careers. The majority (83.56%) secured jobs within three months. Therefore, the results validated the BMLS program's strong academic foundation, industry relevance, and ability to produce capable, marketable graduates who can serve local and international healthcare demands.
3. The high employment rate of 145 out of 146 respondents being employed confirms the program's success in preparing graduates for the workforce and further education. The data is consistent with national trends in Medical Technology, reinforcing the curriculum's relevance. Most graduates obtained full-time employment shortly after licensure, with 82.88% working in roles directly related to their training, validating the program's efficacy in meeting professional demands. Overall, these findings attest to how crucial it is to continue developing the BMLS program in order to keep it at the top of healthcare workforce development and keep up with the changing needs of the industry.
4. Employability is shaped by academic performance, internship experience, competencies, and professional networking. Internships enhance job readiness, while skills in communication, problem-solving, and technical expertise are crucial in clinical settings. Networking supports job placement and career growth. These findings highlight the combined impact of experiential learning, skill development, and professional connections on employment outcomes.

5. The most influential factors in enhancing the employability of MLS graduates are the firsthand experience gained during internships (WM = 3.59) and the availability of advanced equipment and technology at the internship facilities (WM = 3.57), emphasizing that real-world exposure and access to modern diagnostic tools are critical in bridging the gap between academic learning and professional readiness; this underscores the need for academic institutions to partner with technologically advanced and diverse clinical settings to ensure that graduates develop the competencies, adaptability, and confidence required in today's rapidly evolving healthcare environment.
6. The strongest contributors to the employability of MLS graduates are personality traits such as perseverance, attention to detail, and commitment, and continuous self-development including communication, critical thinking, and problem-solving skills. This highlights the vital role of strong character, emotional resilience, and a proactive approach to learning in achieving job satisfaction, long-term career stability, and competitive advantage in the healthcare industry. These findings suggest that employers highly value graduates who combine technical competence with soft skills and personal growth, as they are better equipped to navigate the demands of modern laboratory settings and contribute meaningfully to their organizations.

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APPENDIX A

LETTER OF INTENT TO CONDUCT A STUDY



LORMA COLLEGE OF MEDICAL LABORATORY SCIENCE
Center for Health Sciences – Carlatan Campus
City of San Fernando, La Union, Philippines 2500



March 6, 2025

MR. RYAN JAY G. MOSTOLES, MASE, RMT, CT
Chair, LORMA Colleges – Research Ethics Committee
LORMA Colleges, Inc.
Carlatan, City of San Fernando, La Union

RE: LETTER OF INTENT TO CONDUCT A STUDY

Warm greetings of peace and health!

The undersigned BMLS third year students are interested to conduct a quantitative research entitled "PATHWAYS TO SUCCESS: DETERMINANTS OF EMPLOYMENT OUTCOMES FOR MEDICAL LABORATORY SCIENCE GRADUATES OF LORMA COLLEGES." This is in partial fulfillment of the requirements for the course MRESEARCH1: Introduction to Medical Laboratory Science Research 1.

In this regard, we respectfully request your acceptance and approval regarding the conduct of our research study.

We hope that you will be able to consider our request. Thank you very much and God bless!

Respectfully yours,

The researchers of BMLS III – Section 1 Group 5


Ma. Edilyn A. Abuan


Justin James G. Estepa


Dhanica Faye O. Olaviano

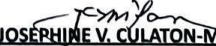

Aaron Gerald N. Bugayong


Jasmine Joy N. Mique


Erienza Katrina L. Tabugno

Noted by:


MR. MARK ERICSON B. BALADAD, MMPHA, RMT
MLS Research 1 Instructor


JOSEPHINE V. CULATON-MILAN, MSMT, RMT
Research Faculty Adviser



DEAN JOSEPHINE V. CULATON-MILAN, MSMT, RMT
Chair, LORMA CMLS – Research Technical Committee

APPENDIX B

LETTER OF INTENT TO THE FACULTY RESEARCH ADVISER



LORMA COLLEGE OF MEDICAL LABORATORY SCIENCE
Carlatan, City of San Fernando, La Union, Philippines, 2500
Facebook: @LormaCMLS | E-mail: cmls@lorma.edu



September 18, 2024

Brylle Kevin Ugay, RMT
Instructor
LORMA College of Medical Laboratory Science
City of San Fernando, La Union 2500

Re: Letter to the Research Adviser

Warm greetings of peace and health!

The undersigned BMLS third year students are interested to conduct a (public health) research entitled **"Pathways to Success: Determinants of Employment Outcomes for Medical Laboratory Science Graduates of Lorma Colleges."** This is in partial fulfillment of the requirements for the course MRESEARCH1: Introduction to Medical Laboratory Science Research 1.

Given the scope and importance of our research in understanding the factors that influence the employment outcomes of Medical Laboratory Science graduates, we believe that your knowledge and experience in this field will be invaluable to the success of our study. Your insights will not only enhance the depth of our research but also ensure that our methodology and analysis are aligned with the highest standards of academic rigor.

We are confident that, with your guidance, we will be able to contribute meaningfully to the body of knowledge in our field, while also providing insights that may benefit future graduates of our institution.

Should there be any further questions, concerns, or clarifications, please do not hesitate to reach our lead research proponent:

Name: Aaron Gerald Bugayong (BMLS III-1)
Phone number: 09953616212
E-mail: aarongerald.bugayong@lorma.edu

We hope that you will be able to consider our request.

Thank you very much and God bless!

Respectfully yours,


Bugayong, Aaron Gerald

Abuan, Ma. Edilyn

Olaviano, Dhanica Faye

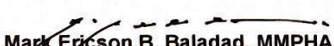

Estepa, Justin James

Mique, Jasmine Joy

Tabugno, Erieza Katrina

Student Researchers

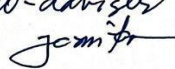
Noted by:


Mark Ericson B. Baladad, MMPHA, RMT
Research Coordinator, LORMA College of Medical Laboratory Science

Josephine V. Culaton-Milan, MSMT, RMT
Dean, LORMA College of Medical Laboratory Science

Conformed:


Brylle Kevin Ugay, RMT
Faculty Research Adviser
Date:

CO-advisee


APPENDIX C

CONTRACT OF ACCEPTANCE FOR FACULTY ADVISER



LORMA COLLEGE OF MEDICAL LABORATORY SCIENCE
Carlatan, City of San Fernando, La Union, Philippines, 2500
Facebook: @LormaCMLS | E-mail: cmls@lorma.edu



Contract of Acceptance for Faculty Research Adviser

Choosing a research topic and finding an adviser are clearly linked, although, the first precedes the second. The competency and passion of Research Advisers parallel the successful completion of the research initiative.

As per the current standing CMLS Research Manual, only bona fide employees of the LORMA Colleges may be assigned as Research Advisers by the Research Coordinator and Instructor, with the approval of the office of the Dean. Priority for research paper advising will be given to full-time faculty members of the College.

Every member of the faculty must handle at least one (1) research group per Academic Year. A maximum of five (5) groups can be handled by a Faculty Research Adviser to ensure the quality of the outputs.

Lastly, the Faculty Adviser's research interests, expertise, experiences, previous research works/publications, as well as their acceptance, credence, and initiative to help must be considered.

Responsibilities of the Faculty Research Advisers

Research is one of the pillars of higher education, alongside instruction and extension. Therefore, it is imperative for faculty members to engage in research activities which would contribute to the current pool of knowledge in the field of medical laboratory science, public health, allied health education, and other related fields.

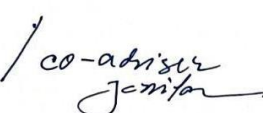
1. Formulate general and specific questions and decide of the overall direction of the study proposed by the student.
2. Input ideas, monitor, and supervise the progress of the paper.
3. Help resolve group disputes or conflicts and unify the group.
4. Extensively and substantially assist on the data gathering procedure (either during interview, dissemination of questionnaires, experimentation) in Research 2 and writing of the manuscript.
5. Minimize the risk of the study to the research participants by stringently ensuring that all legal and ethical principles are followed and implemented as prescribed by institutional research standards.
6. Contribute on the revisions based on the suggestion and recommendations by the Research Technical Panel and partner institution (if present).
7. Check the completeness, accuracy, validity, and rigor of methodology to be employed and the data gathered.
8. Attend on the proposal and final defense schedules and clarify concepts to the Research Defense Panel if asked to intervene.
9. Obligated to oversee the research paper even after defense (for publication and participation in various fora or academic conferences).

I understand all the terms and conditions stated herein.

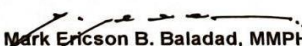
Therefore, I fully accept the duties and responsibilities inherent to becoming a Faculty Research Adviser for the research entitled: **"Pathways to Success: Determinants of Employment Outcomes for Medical Laboratory Science Graduates of Lorma Colleges"**

Conformed:


Brylle Kevin Ugay, RMT
Faculty Research Adviser
Date:


co-adviser
Jenifer

Noted by:


Mark Ericson B. Baladad, MMPHA, RMT
Research Coordinator, LORMA College of Medical Laboratory Science

Josephine V. Culaton-Milan, MSMT, RMT
Dean, LORMA College of Medical Laboratory Science

APPENDIX D

LETTER TO THE RESEARCH STATISTICIAN



LORMA COLLEGE OF MEDICAL LABORATORY SCIENCE
Carlatan, City of San Fernando, La Union, Philippines, 2500
Facebook: @LormaCMLS | E-mail: cmls@lorma.edu



December 02, 2024

Jerome P. Vera, LPT
Lorma College of Education and Sciences

Re: Letter to the Research Statistician

Warm greetings of peace and health!

We hope this letter finds you well. We are student researchers of Bachelor of Science in Medical Laboratory Science of Lorma Colleges. We are currently working on a research project titled **"Pathways to Success: Determinants of Employment Outcomes for Medical Laboratory Science Graduates of Lorma Colleges"**, which aims to describe the employment outcomes of Medical Laboratory Science (MLS) graduates from Lorma Colleges.

In the course of conducting our research, we have realized the critical importance of statistical analysis to accurately interpret the data we are going to gather. However, we are still in the process of learning the finer details of statistical methods and would greatly appreciate your expertise.

Your extensive experience in this field would be incredibly valuable to ensuring the accuracy and robustness of our findings. We would be deeply grateful for your assistance and are more than happy to discuss the details of our project and share the data we have collected so far.

Thank you very much for considering our request. We understand that your time is valuable, and we sincerely appreciate any help you are able to offer.

We look forward to hearing from you and hope to have the opportunity to work with you on this exciting research endeavor.

Sincerely,

Name: Aaron Gerad N. Bugayong
Phone number: 09953616212
E-mail: aarongerald.bugayong@lorma.edu

Thank you very much and God bless!

Respectfully yours,

Ma. Edilyn A. Abuan

Justin James G. Estepa

Jasmine Joy V. Mique

Dhanica Faye O. Olaviano

Erieza Katrina L. Tabugno

Noted by:

Mark Ericson B. Baladad, MMPHA, RMT
Instructor, Research Lecture and Laboratory

Josephine V. Culaton-Milan, RMT, MSMT
Research Adviser

Josephine V. Culaton-Milan, RMT, MSMT
Dean, LORMA College of Medical Laboratory Science

Conformed by:

Jerome P. Vera, LPT
Research Statistician
Date: 12-03-24

NOTE: SIGNED ON BEHALF
OF THE DEAN FOR
THE REQUEST TO BE
PROMPTLY PROCESSED.
ONCE AVAILABLE, THE
REQUESTORS MAY
REDO THE LETTER.

-MEB BALADAD

APPENDIX E

LETTERS OF COMMUNICATION TO THE TARGET SAMPLES



LORMA COLLEGE OF MEDICAL LABORATORY SCIENCE
Carlatan, City of San Fernando, La Union, Philippines, 2500
Facebook: @LormaCMLS | E-mail: cmls@lorma.edu



April 12, 2025

LUINIO S. TONGSON, MD, FPCS, MsPH, MMHOA, Ed.D.
President and Chief Executive Officer
Bethany Hospital Inc

Thru: **Melanie O. Licican, MD, DPBA, FPSA**
Medical Training Officer
Bethany Hospital Inc.



Dear Sir/Ma'am:

Greetings from LORMA Colleges!

We, third-year students of the College of Medical Laboratory Science at LORMA Colleges, are currently conducting a research study titled ***"Pathways to Success: Determinants of Employment Outcomes for Medical Laboratory Science Graduates of LORMA Colleges."*** This study aims to assess the employment outcomes of graduates from 2021 to 2024.

To uphold the credibility of our study, we kindly request your permission to conduct data gathering within your institution. We intend to distribute structured questionnaires via Google Forms to Registered Medical Technologists (RMTs) who graduated between 2021 and 2024 from LORMA Colleges, meeting our inclusion criteria and willing to participate. We aim to receive the completed questionnaires within sixteen (16) working hours after distribution.

We would greatly appreciate your support in facilitating this process. All information collected will remain confidential and will be used solely for academic research purposes. We are committed to maintaining the highest ethical standards throughout the conduct of this study.

Should you have any questions or require further information, please feel free to contact the lead proponent:

Name: Aaron Gerald N. Bugayong
Email: aarongerald.bugayong@lorma.edu
Mobile: 0995-361-6212

Thank you for your time and kind consideration.

Sincerely,

ABUAN, MA. EDILYN, A.

ESTEPA, JUSTIN JAMES G.

BUGAYONG, AARON GERALD,

MIQUE, JASMINE JOY V.

ABUGNO, ERIEZA KATRINA L.

Noted by:

JOSEPHINE V. CULATON-MILAN, MSMT, RMT
Faculty Research Adviser
Dean, LORMA College of Medical Laboratory Science

MARK ERICSON B. BALADAD, MMPHA, RMT
Research Coordinator, LORMA College of Medical Laboratory Science



April 12, 2025

Lilian S. Silvino, RMT
Chief Medical Technologist
Lorma Medical Center

Dear Sir/Ma'am:

Greetings from LORMA Colleges!

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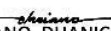
Name: Aaron Gerald N. Bugayong
Email: aarongerald.bugayong@lorma.edu
Mobile: 0995-361-6212

Thank you for your time and kind consideration.

Sincerely,


ABUAN, MA. EDILYN, A.


ESTEPA, JUSTIN JAMES G.


OLAVIANO, DHANICA FAYE O.


BUGAYONG, AARON GERALD N.


MIQUE, JASMINE JOY V.


TABUGNO, ERIENZA KATRINA L.

Noted by:


JOSEPHINE V. CULATON-MILAN, MSMT, RMT
Faculty Research Adviser
Dean, LORMA College of Medical Laboratory Science


MARK ERICKSON B. BALADAD, MMPHA, RMT
Research Coordinator, LORMA College of Medical Laboratory Science



April 15, 2025

Michael C. Bangloy, MD
City Health Officer II
City Health Office

Dear Sir/Ma'am:

Greetings from LORMA Colleges!

We, third-year students of the College of Medical Laboratory Science at LORMA Colleges, are currently conducting a research study titled ***"Pathways to Success: Determinants of Employment Outcomes for Medical Laboratory Science Graduates of LORMA Colleges."*** This study aims to assess the employment outcomes of graduates from 2021 to 2024.

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Name: Aaron Gerald N. Bugayong
Email: aarongerald.bugayong@lorma.edu
Mobile: 0995-361-6212

Thank you for your time and kind consideration.

Sincerely,

ABUAN, MA. EDILYN, A.

ESTEPA, JUSTIN JAMES G.

OLAVIANO, DHANICA FAYE O.

BUGAYONG, AARON GERALD N.

MIQUE, JASMINE JOY V.

TABUGNO, ERIEZA KATRINA L.

Noted by:

JOSEPHINE V. CULATON-MILAN, MSMT, RMT
Faculty Research Adviser
Dean, LORMA College of Medical Laboratory Science

MARK ERICKSON B. BALADAD, MMPHA, RMT
Research Coordinator, LORMA College of Medical Laboratory Science



April 12, 2025

Almira V. Abrazado

Philippine Red Cross - La Union Chapter
City of San Fernando La Union

Dear Sir/Ma'am:

Greetings from LORMA Colleges!

We, third-year students of the College of Medical Laboratory Science at LORMA Colleges, are currently conducting a research study titled ***"Pathways to Success: Determinants of Employment Outcomes for Medical Laboratory Science Graduates of LORMA Colleges."*** This study aims to assess the employment outcomes of graduates from 2021 to 2024.

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Email: aarongerald.bugayong@lorma.edu
Mobile: 0995-361-6212

Thank you for your time and kind consideration.

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ABUAN, MA. EDILYN, A.


ESTEPA, JUSTIN JAMES G.

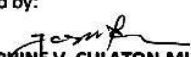

OLAVIANO, DHANICA FAYE O.


BUGAYONG, AARON GERALD N.


MIQUE, JASMINE JOY V.


TABUGNO, ERIEZA KATRINA L.

Noted by:


JOSEPHINE V. CULATON-MILAN, MSMT, RMT
Faculty Research Adviser
Dean, LORMA College of Medical Laboratory Science


MARK ERICSON B. BALADAD, MMPHA, RMT
Research Coordinator, LORMA College of Medical Laboratory Science



April 12, 2025

Dr. EDUARDO M. BADUA III, MD, FPSP
Medical Center Chief II
Ilocos Training and Regional Medical Center (ITRMC)

Thru: **DR. BRENDA L. ROSUMAN, MD, FPSP**
Head Department of Laboratories

Dear Sir/Ma'am:

Greetings from LORMA Colleges!

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Should you have any questions or require further information, please feel free to contact the lead proponent:

Name: Aaron Gerald N. Bugayong
Email: aarongerald.bugayong@lorma.edu
Mobile: 0995-361-6212

Thank you for your time and kind consideration.

Sincerely,


ABUAN, MA. EDILYN, A.


ESTEPA, JUSTIN JAMES G.


OLAVIANO, DHANICA FAYE O.

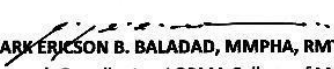

BUGAYONG, AARON GERALD N.


MIQUE, JASMINE JOY V.


TABUGNO, ERIENZA KATRINA L.

Noted by:


JOSEPHINE V. CULATON-MILAN, MSMT, RMT
Faculty Research Adviser
Dean, LORMA College of Medical Laboratory Science


MARK ERICSON B. BALADAD, MMPHA, RMT
Research Coordinator, LORMA College of Medical Laboratory Science

APPENDIX F

APPROVAL LETTER FROM LORMA COLLEGES - REVIEW ETHICS COMMITTEE (LC-REC)



LC-REC Form 0024
APPROVAL LETTER

REC Reference #: 2025-098

March 24, 2025

To: Ma. Edilyn A. Abuan, Aaron Gerald N. Bugayong, Justin James G. Estepa, Jamsine Joy V. Mique, Dhanica Faye O. Olaviano and Erieza Katrina L. Tabugno
LORMA Colleges, College of Medical Laboratory Science

Subject: Approval of the Research Study "PATHWAYS TO SUCCESS: DETERMINANTS OF EMPLOYMENT OUTCOMES FOR MEDICAL LABORATORY SCIENCE GRADUATES OF LORMA COLLEGES" by the Research Ethics Committee (REC).

Dear Researchers,

The Research Ethics Committee (REC) has reviewed your application to conduct the above-mentioned research study in the LOCALE OF STUDY with you as the Principal Investigators within the duration of March 24, 2025 to March 24, 2026.

The Following documents have been reviewed and approved:

1. Letter of Intent to Conduct the Study
2. Endorsement of the Research Technical Panel
3. Title and Statement of the Problem/ Objective
4. Literature Review
5. Methods and Procedures
6. Population and Locale
7. Exclusion/Inclusion Criteria
8. Data Analysis
9. Ethical Considerations

We approve the study to be conducted in the presented form provided the following are integrated in the final research protocol:

1. Specify how the data collected will be stored and when it will be deleted.
2. Provide the statistical treatment for SOP 3 and the distribution of the respondents per school year graduated since the researchers are using stratified sampling.
3. Include the validation results of the researcher-made questionnaire and statements on the process of acquiring permission from the CMLS Dean, LC-REC and others in the conduct of the study.
4. In the informed consent form, make the introduction short and direct to the point and state the ICF as if the researchers were directly communicating with the respondents.

None of the Investigators participating in this study took part in the decision making and voting procedure for this study.

The Institutional REC expects to be informed about the progress of the study, any revision in the protocol before implementation and participants'/respondents' information/informed consent. Likewise, you are required to provide the Board a copy of the final report.

Yours Sincerely,

A handwritten signature in black ink, appearing to read "Beverly B. Barut".

BEVERLY B. BARUT, RPH

Member, Lorma Colleges Research Ethics Committee

APPENDIX G

INFORMED CONSENT FORM



INFORMED CONSENT FORM

INSTRUCTION: Please accomplish the form and ensure that all necessary documents are included in your submission.

GENERAL INFORMATION:

Title of the Study: Pathways to Success: Determinants of Employment Outcomes for Medical Laboratory Science Graduates of LORMA Colleges

REC Code : 2025-098

No. of Study Participants: 146
Study Site: LORMA Colleges

Name of Researcher/s: Ma. Edilyn A. Abuan
Aaron Gerald N. Bugayong
Justin James G. Estepa
Jasmine Joy V. Mique
Dhanica Faye O. Olaviano
Erieza Katrina L. Tabugno

Contact Information: Telephone Number: N/A

Mobile Number: 09953616212

Fax Number: N/A

Email: aarongerald.bugayong@lorma.edu

Name of Institution: LORMA Colleges

Institution's Address: Brgy. Carlatan, City of San Fernando, La Union

Type of Study: ☐ Sponsored Clinical Trial ☐ Biomedical Research
☐ Researcher-Initiated Clinical Trial ☐ Stem Cell Research
☐ Health Operations Research ☐ Genetic Research
☐ Social or Behavioral Research ☐ Others: Institutional Research
☐ Public Health or Epidemiologic

Source of Funding: ☒ Self-Funded ☐ Scholarship/Research Grant
☐ Government-Funded ☐ Institution-Funded
☐ Sponsored by Pharmaceutical Company
☐ Others: _____

Duration of the Study: Start Date: August 2024

End Date: May 2025

INTRODUCTION

The field of Medical Laboratory Science plays a critical role in healthcare by supporting clinical decision-making through diagnostic testing. As such, graduates of Medical Laboratory Science programs are equipped with essential skills to meet the growing demand for healthcare professionals. In the Philippines, LORMA Colleges has been at the forefront of producing skilled graduates in this field. However, despite the increasing need for medical laboratory scientists, the employment outcomes of these graduates can vary significantly, influenced by a variety of factors. Understanding the determinants that affect these outcomes is crucial in helping improve both the academic preparation of students and their post-graduation employment success.

This study aims to address this gap by exploring the employment outcomes of MLS graduates from LORMA Colleges, a leading institution in healthcare education in the Northern Philippines. By examining elements such as academic performance,, internship experiences, professional networking, and competency and skills,, this research seeks to identify the important pathways that lead to successful employment in this field. The findings of this study could offer valuable insights to educators, policymakers, and prospective students to enhance the transition from academic training to successful career placement in medical laboratory science.

PURPOSE OF RESEARCH

The primary purpose of this research is to investigate the determinants that contribute to the employment outcomes of Medical Laboratory Science graduates from LORMA Colleges. By identifying these factors, the study seeks to provide recommendations for improving graduate employability and aligning educational programs with the needs of the healthcare industry. Additionally, the research aims to offer a comprehensive understanding of the barriers and enablers of employment for graduates in this field, and how these factors influence their professional success. Through this investigation, the study hopes to contribute to the ongoing development of more effective educational and professional pathways for future Medical Laboratory Science graduates.

TYPE OF RESEARCH INTERVENTION

1. Participant Selection

Stratified sampling is a method of participant selection where the population is divided into distinct subgroups, or strata, that share similar characteristics, such as age, gender, or income level. Participants are then randomly selected from each stratum in proportion to their representation in the overall population.

2. Voluntary Participation

Participation in this study is entirely voluntary. Participants have the right to choose whether or not to participate and may withdraw at any time without providing a reason. Declining to participate or choosing to withdraw will not result in any negative consequences or affect any services or benefits to which participants are entitled. All decisions will be fully respected and treated with confidentiality.

3. Procedures

Participants will complete an online survey administered through Google Forms. The survey link will be shared via email or social media, and participants can access it at their convenience. The survey will consist of 21 questions designed to gather information on employment outcomes of Medical Laboratory Science graduates of LORMA Colleges. Participants will be required to read the instructions carefully before beginning the survey and submit their responses electronically. All responses will be collected and stored securely to ensure confidentiality.

4. Risks

There are no known risks associated with participating in this research. Every effort will be made to minimize any inconvenience and ensure participants' comfort throughout the process.

5. Benefits

Participants may not receive direct personal benefits from this study; however, their involvement will help identify key factors that influence employment outcomes for Medical Laboratory Science graduates of LORMA Colleges. The findings from this research could contribute to the improvement of educational programs, career services, and employment support, potentially benefiting future graduates and enhancing their career prospects.

6. Reimbursements

There are no reimbursements or financial incentives offered for participating in this study. Participation is voluntary, and no compensation will be provided for completing the survey.

7. Confidentiality

All information provided by participants will be kept strictly confidential. Personal identifiers will not be collected, and responses will be anonymized to ensure privacy. Data will be stored securely and will only be accessible to the researchers. Every effort will be made to protect participants' privacy and confidentiality throughout the research process.

8. Sharing of Results

The results of this study may be shared in academic publications, presentations, or reports. However, all findings will be presented in aggregate form, ensuring that individual responses cannot be traced back to any participant. Participants' identities will remain confidential, and no personal information will be disclosed.

9. Right to Refuse or Withdraw

Participants have the right to refuse participation or withdraw from the study at any time, without providing a reason. There will be no negative consequences or impact on services or benefits to which participants are entitled if they choose to withdraw. Their decision will be respected, and any data already collected will be excluded from the study if they choose to withdraw.

10. Who to Contact

Participants may contact Aaron Gerald N. Bugayong, the research leader, at aarongerald.bugayong@lorma.edu or through mobile number 09953616212, for any concerns or inquiries.

APPENDIX H

LETTERS FOR THE VALIDITY AND RELIABILITY TESTING



LORMA COLLEGES
Carlattan, City of San Fernando, La Union
COLLEGE OF MEDICAL LABORATORY SCIENCE



February , 2025

Mr. Jose Enrico M. Sumaya, RMT

Dear Sir:

Subject: Request for Validation of Research Questionnaire

I hope this letter finds you well. We are writing to formally request your expertise in validating the research questionnaire for our study titled **"Pathways to Success: Determinants of Employment Outcomes for Medical Laboratory Science Graduates of Lorma Colleges."**

This study aims to examine the employment outcomes of Medical Laboratory Science (MLS) graduates and identify key factors influencing their employability and professional success.

Given your expertise, we kindly seek your assistance in reviewing our questionnaire to ensure its validity, clarity, and appropriateness in capturing the necessary data for our study. Your insights and recommendations will be invaluable in refining the instrument to improve its reliability and relevance.

The questionnaire covers aspects such as demographic information and factors influencing employment outcomes, including academic performance, competency and skills, internship experience, and professional networking. We would greatly appreciate any feedback.

Should you require any additional information regarding the study, please do not hesitate to contact our group research leader, Aaron Gerald N. Bugayong, via email [aarongerald.bugayong@lorma.edu] or SMS [0995 361 6212]. We sincerely appreciate your time and expertise in this matter.

Thank you for your consideration and support. We look forward to your valuable feedback.


Aaron Gerald N. Bugayong


Justin James G. Estepa


Ma. Edilyn A. Abuan


Jasmine Joy V. Mique


Dhanica Faye O. Olaviano


Erienza Katrina L. Tabugno

Noted by:


Mark Ericson B. Baladad, MMPHA, RMT
Research II Lecture Instructor
Date: 2/28/2025


Mark Ericson B. Baladad, MMPHA, RMT
CMLS Research Coordinator
Date: 2/28/2025

Approved by:


Dean Josephine V. Culaton-Milan, MSMT, RMT
LORMA College of Medical Laboratory Science
Date:



February , 2025

Mr. Tyson L. Orpiano, RMT (ASCPi)

Dear Sir:

Subject: Request for Validation of Research Questionnaire

I hope this letter finds you well. We are writing to formally request your expertise in validating the research questionnaire for our study titled "**Pathways to Success: Determinants of Employment Outcomes for Medical Laboratory Science Graduates of Lorma Colleges.**"

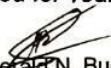
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Aaron Gerald N. Bugayong


Justin James G. Estepa


Ma. Edilyn A. Abuan


Jasmine Joy V. Mique


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Noted by:


Mark Ericson B. Baladad, MMPHA, RMT
Research II Lecture Instructor
Date: 2/28/2025


Mark Ericson B. Baladad, MMPHA, RMT
CMLS Research Coordinator
Date: 2/28/2025

Approved by:


Dean Josephine V. Culaton-Milan, MSMT, RMT
LORMA College of Medical Laboratory Science
Date:



March 7, 2025

Mrs. Mary Jane Aum, RMT

Dear Ma'am:

Subject: Request for Validation of Research Questionnaire

I hope this letter finds you well. We are writing to formally request your expertise in validating the research questionnaire for our study titled **"Pathways to Success: Determinants of Employment Outcomes for Medical Laboratory Science Graduates of Lorma Colleges."**

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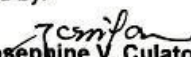

Erienza Katrina L. Tabugno

Noted by:


Mark Ericson B. Baladad, MMPHA, RMT
Research II Lecture Instructor
Date: 2/28/2025


Mark Ericson B. Baladad, MMPHA, RMT
CMLS Research Coordinator
Date: 2/28/2025

Approved by:


Dean Josephine V. Culaton-Milan, MSMT, RMT
LORMA College of Medical Laboratory Science
Date:



March 14, 2025

Marc Jay G. Lakay, RMT, MD

Dear Sir:

Subject: Request for Validation of Research Questionnaire

I hope this letter finds you well. We are writing to formally request your expertise in validating the research questionnaire for our study titled **"Pathways to Success: Determinants of Employment Outcomes for Medical Laboratory Science Graduates of Lorma Colleges."**

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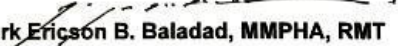

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Mark Ericson B. Baladad, MMPHA, RMT
CMLS Research Coordinator
Date: 2/28/2025

Approved by:


Dean Josephine V. Culaton-Milan, MSMT, RMT
LORMA College of Medical Laboratory Science
Date:



March 7, 2025

Kyla Marie T. Dela Cruz

Dear Ma'am:

Subject: Request for Validation of Research Questionnaire

I hope this letter finds you well. We are writing to formally request your expertise in validating the research questionnaire for our study titled **"Pathways to Success: Determinants of Employment Outcomes for Medical Laboratory Science Graduates of Lorma Colleges."**

This study aims to examine the employment outcomes of Medical Laboratory Science (MLS) graduates and identify key factors influencing their employability and professional success.

Given your expertise, we kindly seek your assistance in reviewing our questionnaire to ensure its validity, clarity, and appropriateness in capturing the necessary data for our study. Your insights and recommendations will be invaluable in refining the instrument to improve its reliability and relevance.

The questionnaire covers aspects such as demographic information and factors influencing employment outcomes, including academic performance, competency and skills, internship experience, and professional networking. We would greatly appreciate any feedback.

Should you require any additional information regarding the study, please do not hesitate to contact our group research leader, Aaron Gerald N. Bugayong, via email [aarongerald.bugayong@lorma.edu] or SMS [0995 361 6212]. We sincerely appreciate your time and expertise in this matter.

Thank you for your consideration and support. We look forward to your valuable feedback.


Aaron Gerald N. Bugayong


Justin James G. Estepa


Ma. Edilyn A. Abuan


Jasmine Joy V. Mique


Dhanica Faye O. Olaviano


Erienza Katrina L. Tabugno

Noted by:


Mark Ericson B. Baladad, MMPHA, RMT
Research II Lecture Instructor
Date: 2/28/2025


Mark Ericson B. Baladad, MMPHA, RMT
CMLS Research Coordinator
Date: 2/28/2025

Approved by:


Dean Josephine V. Culaton-Milan, MSMT, RMT
LORMA College of Medical Laboratory Science
Date:



April 7, 2025

Dr. EDUARDO M. BADUA III, MD, FPSP
Medical Center Chief II
Ilocos Training and Regional Medical Center (ITRMC)

Thru: **DR. BRENDA L. ROSUMAN, MD, FPSP**
Head Department of Laboratories



Dear Sir/Ma'am:

Greetings from LORMA Colleges!

We, third-year students of the College of Medical Laboratory Science at LORMA Colleges, are currently conducting a research study titled *"Pathways to Success: Determinants of Employment Outcomes for Medical Laboratory Science Graduates of LORMA Colleges."* This study aims to assess the employment outcomes of graduates from 2021 to 2024.

To ensure the credibility of our study, we respectfully request your permission to conduct a reliability test within your esteemed institution. Specifically, we seek to distribute structured questionnaires to Registered Medical Technologists (RMTs) employed before 2021 who are willing to participate and meet our inclusion criteria. We respectfully anticipate receiving the accomplished questionnaires within sixteen (16) working hours from the time of distribution.

We would greatly appreciate your support in facilitating this process. All information collected will remain confidential and will be used solely for academic research purposes. We are committed to maintaining the highest ethical standards throughout the conduct of this study.

Should you have any questions or require further information, please feel free to contact the lead proponent:

Name:	Aaron	Gerald	N.	Bugayong
Email:				aarongerald.bugayong@lorma.edu
Mobile:	0995-361-6212			

Thank you for your time and kind consideration.

Sincerely,

ABUAN, MA. EDILYN, A.

ESTEPA, JUSTIN JAMES G.

OLAVIANO, DHANICA FAYE O.

BUGAYONG, AARON GERALD,

MIQUE, JASMINE JOY V.

TABUGNO, ERIEZA KATRINA L.

Noted by:

JOSEPHINE V. CULATON-MILAN, MSMT, RMT
Faculty Research Adviser
Dean, LORMA College of Medical Laboratory Science

MARK ERICKSON B. BALADAD, MIMPHA, RMT
Research Coordinator, LORMA College of Medical Laboratory Science



April 7, 2025

Dr. EVAMARIE D. MADAYAG, MD, FPCOM, MBAH
Medical Director
La Union Medical Diagnostic Center and Hospital, Inc.

Dear Sir/Ma'am:

Greetings from LORMA Colleges!

We, third-year students of the College of Medical Laboratory Science at LORMA Colleges, are currently conducting a research study titled *"Pathways to Success: Determinants of Employment Outcomes for Medical Laboratory Science Graduates of LORMA Colleges."* This study aims to assess the employment outcomes of graduates from 2021 to 2024.

To ensure the credibility of our study, we respectfully request your permission to conduct a reliability test within your esteemed institution. Specifically, we seek to distribute structured questionnaires to Registered Medical Technologists (RMTs) employed before 2021 who are willing to participate and meet our inclusion criteria. We respectfully anticipate receiving the accomplished questionnaires within sixteen (16) working hours from the time of distribution.

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Email:				aarongerald.bugayong@lorma.edu
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Noted by:

JOSEPHINE V. CULATON-MILAN, MSMT, RMT
Faculty Research Adviser
Dean, LORMA College of Medical Laboratory Science

MARK ERICSON B. BALADAD, MMPHA, RMT
Research Coordinator, LORMA College of Medical Laboratory Science

APPENDIX I

VALIDITY TESTING AND VALIDATION TOOL OF RESEARCH QUESTIONNAIRE



LORMA COLLEGES
Carlatan, City of San Fernando, La Union
COLLEGE OF MEDICAL LABORATORY SCIENCE



SURVEY INSTRUMENT VALIDATION RATING SCALE

Instruction: Please indicate your degree of agreement or disagreement on the statements provided below by encircling the number which corresponds to your best to your judgment.

1 – Strongly Disagree 2 – Disagree 3 – Undecided 4 – Agree 5 – Strongly Agree

Criteria

The items in the instrument are relevant to answer the objectives of the study.	1	2	3	4	5
The items in the instrument can obtain depth to constructs being measured.	1	2	3	4	5
The instrument has an appropriate sample of items for the construct being measured.	1	2	3	4	5
The items and their alternatives are neither too narrow nor limited in its content.	1	2	3	4	5
The items in the instrument are stated clearly.	1	2	3	4	5
The items on the instrument can elicit responses which are stable, definite, consistent and not conflicting.	1	2	3	4	5
The terms adapted in the scale are culturally appropriate.	1	2	3	4	5
The layout or format of the instrument is technically sound.	1	2	3	4	5
The responses on the scale show a reasonable range of variation.	1	2	3	4	5
The instrument is not too short or long enough that the participants will be able to answer it within a given time.	1	2	3	4	5
The instrument is interesting such that participants will be induced to respond to it and accomplish it fully.	1	2	3	4	5
The instrument as a whole could answer the basic purpose for which it is designed.	1	2	3	4	5
The instrument is culturally acceptable when administered in the local setting.	1	2	3	4	5

Comments and Suggestions:

A lot of questions are more reliably answered by the employer rather than the employee. Say, for the factors that contributed in securing their job, how will they gauge the contributory factor if they were not part of the selection committee? Questions like those I think should be rephrased, let's say, you can start with, "In your opinion, Make the questionnaire more concise. Use simple english words. Avoid being redundant when it comes to the thought of the questions.



SURVEY INSTRUMENT VALIDATION RATING SCALE

Instruction: Please indicate your degree of agreement or disagreement on the statements provided below by encircling the number which corresponds to your best to your judgment.

1 – Strongly Disagree 2 – Disagree 3 – Undecided 4 – Agree 5 – Strongly Agree

Criteria

The items in the instrument are relevant to answer the objectives of the study.	1	2	3	4	5
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The instrument is culturally acceptable when administered in the local setting.	1	2	3	4	5

Comments and Suggestions:

Kindly attach your background of the study for me to understand your main goal of the study. I am actually confuse if you are finding factors that contribute to the employability of MEd graduates whether as Med tech or a QMS graduate in any job.



SURVEY INSTRUMENT VALIDATION RATING SCALE

Instruction: Please indicate your degree of agreement or disagreement on the statements provided below by encircling the number which corresponds to your best to your judgment.

1 – Strongly Disagree 2 – Disagree 3 – Undecided 4 – Agree 5 – Strongly Agree

Criteria					
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The instrument as a whole could answer the basic purpose for which it is designed.	1	2	3	4	5
The instrument is culturally acceptable when administered in the local setting.	1	2	3	4	5

Comments and Suggestions:

Can you adjust / make the section VI into section IV? It seems better when it is first, because it talks about the personality of the respondent. It should be before the employment outcomes and career growth (Section IV).



SURVEY INSTRUMENT VALIDATION RATING SCALE

Instruction: Please indicate your degree of agreement or disagreement on the statements provided below by encircling the number which corresponds to your best to your judgment.

1 – Strongly Disagree 2 – Disagree 3 – Undecided 4 – Agree 5 – Strongly Agree

Criteria					
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The items in the instrument can obtain depth to constructs being measured.	1	2	3	4	5
The instrument has an appropriate sample of items for the construct being measured.	1	2	3	4	5
The items and their alternatives are neither too narrow nor limited in its content.	1	2	3	4	5
The items in the instrument are stated clearly.	1	2	3	4	5
The items on the instrument can elicit responses which are stable, definite, consistent and not conflicting.	1	2	3	4	5
The terms adapted in the scale are culturally appropriate.	1	2	3	4	5
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The instrument as a whole could answer the basic purpose for which it is designed.	1	2	3	4	5
The instrument is culturally acceptable when administered in the local setting.	1	2	3	4	5

Comments and Suggestions:



SURVEY INSTRUMENT VALIDATION RATING SCALE

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The instrument as a whole could answer the basic purpose for which it is designed.	1	2	3	4	5
The instrument is culturally acceptable when administered in the local setting.	1	2	3	4	5

Comments and Suggestions:

APPENDIX J

RESULTS OF VALIDATION TESTING

Criteria	Validator 1	Validator 2	Validator 3	Validator 4	Validator 5	Average
The items in the instrument are relevant to answer the objectives of the study.	3	4	5	4	4	4.00
The items in the instrument can obtain depth to constructs being measured.	4	4	5	4	4	4.20
The instrument has an appropriate sample of items for the construct being measured.	4	5	4	4	4	4.20
The items and their alternatives are neither too narrow nor limited in its content.	4	5	5	4	4	4.40
The items in the instrument are stated clearly.	2	4	5	5	4	4.00
The items on the instrument can elicit responses which are stable, definite, consistent and not conflicting.	2	4	5	4	4	3.80
The terms adapted in the scale are culturally appropriate.	4	4	5	4	4	4.20
The layout or format of the instrument is technically sound.	3	3	5	4	4	3.80
The responses on the scale show a reasonable range of variation	4	5	5	4	4	4.40
The instrument is not too short or long enough that the participants will be able to answer it within a given time.	4	5	5	3	2	3.80
The instrument is interesting such that participants will be induced to respond to it and accomplish it fully.	4	4	5	4	4	4.20
The instrument as a whole could answer the basic purpose for which it is designed.	4	5	5	4	4	4.40
The instrument is culturally acceptable when administered in the local setting.	4	5	5	5	5	4.80
Average	3.54	4.38	4.92	4.08	3.92	4.17
General Weighted Mean						4.17
Interpretation						Highly Valid

The 4.17 overall computed average is considered **highly valid**.

To interpret the degree of questionnaires' validity, the scale below was used:

Point of Scale	Range of Weighted Mean	Descriptive Equivalent
5	4.51 - 5.00	Very High Validity
4	3.51 - 4.50	High Validity
3	2.51 - 3.50	Moderate Validity
2	1.51 - 2.50	Poor Validity
1	1.00 - 1.50	Very Poor Validity

APPENDIX K

RESULTS OF RELIABILITY TESTING

Item-Total Statistics					
	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
AP1	152.23	73.082	.292	.	.795
AP2	151.83	75.730	.085	.	.800
AP3	152.40	75.076	.059	.	.805
AP4	151.97	76.654	-.029	.	.805
AP5	152.33	73.333	.247	.	.796
CS1	151.87	72.533	.456	.	.791
CS2	151.73	72.823	.449	.	.791
CS3	151.73	77.099	-.071	.	.804
CS4	151.87	74.395	.237	.	.796
CS5	151.87	74.671	.206	.	.797
CS6	151.87	73.775	.310	.	.794
CS7	151.97	75.689	.060	.	.802
CS8	152.20	69.269	.585	.	.783
CS9	152.13	72.257	.374	.	.792
CS10	151.97	74.240	.195	.	.798
IE1	152.00	71.448	.598	.	.787
IE2	151.93	68.754	.727	.	.780
IE3	152.03	73.689	.187	.	.799
IE4	151.97	77.689	-.119	.	.809
IE5	151.80	71.269	.541	.	.787
PN1	152.23	70.737	.403	.	.790
PN2	152.07	69.720	.447	.	.788
PN3	152.30	76.562	-.045	.	.812
PN4	151.90	78.369	-.174	.	.811
PN5	152.47	75.982	.010	.	.806
PN6	152.07	73.237	.246	.	.796
PT1	151.90	73.955	.288	.	.795
PT2	151.83	74.833	.188	.	.798
PT3	151.67	75.885	.082	.	.800
PT4	151.77	73.220	.337	.	.793
PT5	151.80	73.545	.344	.	.794
CG1	151.93	75.720	.085	.	.800
CG2	151.87	74.257	.253	.	.796
CG3	151.90	73.059	.393	.	.792
CG4	151.97	74.723	.171	.	.798
CG5	151.73	75.306	.144	.	.799
QoT1	152.00	73.034	.405	.	.792
QoT2	151.77	74.323	.257	.	.796
QoT3	151.93	74.547	.188	.	.798
QoT4	151.80	68.855	.612	.	.782
QoT5	151.70	72.286	.457	.	.790
Facility1	151.97	72.171	.439	.	.790
Facility2	151.73	71.582	.524	.	.788
Facility3	151.87	73.844	.261	.	.796
Facility4	151.73	72.961	.432	.	.792

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.799	.822	45

Point Scale	Descriptive Equivalent
±1.00	Perfect Reliability
±0.71 - ±0.99	Very High Reliability
±0.51 - ±0.70	High Reliability
±0.21 - ±0.50	Low Reliability
0.01 - ±0.20	Negligible Reliability
0	No Reliability

*The reliability is considered **very high reliability**.*

APPENDIX L

RESEARCH QUESTIONNAIRE



PATHWAYS TO SUCCESS: DETERMINANTS OF EMPLOYMENT OUTCOMES FOR MEDICAL LABORATORY SCIENCE GRADUATES OF LORMA COLLEGES

QUESTIONNAIRE

Section I: Demographic Information and Academic Background

1. Year of Completion of Degree/Program: _____
2. Highest Educational Attainment:
 - ☐ Bachelor of Science in Medical Laboratory Science
 - ☐ With Master's Degree (**specify program**): _____
 - ☐ With Doctorate units (**specify program**): _____
 - ☐ Post-Baccalaureate proficiency training (**specify**): _____
3. GWA upon graduation in LORMA:

☐ 1.00 (99-100%)	☐ 2.25 (83-86%)
☐ 1.25 (97-98%)	☐ 2.50 (80-82%)
☐ 1.50 (94-96%)	☐ 2.75 (77-79%)
☐ 1.75 (91-93%)	☐ 3.00 (75-76%)
☐ 2.00 (87-90%)	☐ 5.00 (74-below)
4. Medical Technology Board Examination Rating:

☐ 99-100%	☐ 83-86%
☐ 97-98%	☐ 80-82%
☐ 94-96%	☐ 77-79%
☐ 91-93%	☐ 75-76%
☐ 87-90%	☐ 70-74%

Section II: Employment Information

5. Field of Employment (**Select one**):
 - ☐ Medical Technologist/Clinical Laboratory (hospital, free-standing lab, or doctor's clinic)
 - ☐ Academic/Teaching in Medical Technology School
 - ☐ Research and Development in Medical Technology
 - ☐ Specialized medical laboratory industry (e.g. cytogenetics, nuclear medicine, etc.)
 - ☐ Diagnostic Medical Laboratory Industry (e.g. medical representative)
 - ☐ Medical/Laboratory/Hospital Technician
 - ☐ Unrelated Field (e.g. call center, factory worker, clerical worker etc.)

(**specify**): _____

Current Job Title/Position: _____

6. How long did it take you to secure your first job after passing the board exams?

☐ Less than 3 months	☐ 10-12 months
☐ 3-6 months	☐ 1-2 years
☐ 7-9 months	☐ More than 2 years

7. What professional networks (e.g., professors, alumni, job fairs) did you use to secure your current job?
- ☐ Professor/Instructors/Mentor's Referral
 - ☐ Alumni Placement
 - ☐ Job Fair
 - ☐ Applied to vacant posts

Section III: Factors Influencing Employment

8. For each question below, rate the extent to which each factor influenced your ability to secure employment:

1 - Minimally | 2 - Fairly | 3 - Moderately | 4 - Highly

Academic Performance	1	2	3	4
To what extent did your overall academic performance influence your ability to secure employment?				
To what extent was your curriculum relevant to the industry standards in securing your job?				
To what extent did your General Weighted Average (GWA) or academic standing impact your employment opportunities?				
To what extent was the theoretical knowledge in your major subjects useful in securing employment?				
To what extent did academic recognition or honors received during your studies help you in job applications?				

Competency and Skills	1	2	3	4
How influential were your technical laboratory skills (e.g., use of equipment, tests, and procedures) in securing employment?				
To what extent did your ability to adapt to new technologies and protocols affect your job prospects?				
How significant were your communication and interpersonal skills in helping you secure employment?				
To what extent has effective communication enhanced laboratory accuracy and patient safety?				
To what extent did your problem-solving and critical-thinking skills in a laboratory setting influence				

your ability to find a job?				
How well have critical thinking skills prepared you to handle unexpected challenges in the workplace?				
How important were your teamwork and collaboration skills in securing employment?				
To what extent did your leadership skills contribute to securing a job as an MLS graduate?				
To what extent has your computer literacy given you an edge in the competitive job market as an MLS graduate?				
To what extent does being technologically savvy enhance your ability to perform advanced laboratory techniques, adapt to new diagnostic technologies, and contribute effectively in modern medical settings?				

Internship Experience	1	2	3	4
To what extent did the quality of training during your internship influence your ability to secure employment?				
To what extent did exposure to diverse laboratory procedures and technologies during your internship help you in finding a job?				
How significant was the guidance and mentorship from your internship supervisors in securing employment?				
To what extent did the reputation of the hospital or institution where you interned affect your job prospects?				
How useful were the practical skills you developed during your internship in helping you secure employment?				

Professional Networking	1	2	3	4
To what extent did connections established with mentors, professors, or alumni influence your ability to secure a job?				
How significant were networking opportunities during seminars, conventions, or workshops in your job search?				
To what extent did membership in professional organizations (e.g., PAMET, PASMETH) impact your employment opportunities?				
How important was support from peers and colleagues in				

helping you secure employment?				
To what extent did the use of online professional platforms (e.g., LinkedIn) contribute to your job search success?				
To what extent did networking opportunities at the internship facility help you secure a job?				

Section IV: Employment Outcomes, Personal Attributes, and Career Growth

9. How effective was LORMA Colleges in preparing you for employment as a Medical Laboratory Professional?

- ☐ 4 Highly
☐ 3 Moderately
☐ 2 Fairly
☐ 1 Minimally

10. What is your current monthly salary range?

- ☐ Below ₱20,000
☐ ₱20,000 – ₱30,000
☐ ₱30,001 – ₱40,000
☐ ₱40,001 – ₱50,000
☐ Above ₱50,000

11. In your opinion, what is the most significant factor that contributes to your current employment success? (Open-ended)

- ☐ Post graduate study
☐ Proficiency training (or certification)
☐ Meritorious performances
☐ Earned experiences
☐ Others: _____

12. Rate the following questions based on how your personal attributes contributed to your career growth and employability after graduation.

1 - Minimally | 2 - Fairly | 3 - Moderately | 4 - Highly

Personal Traits	1	2	3	4
How influential were your personal traits, such as confidence, initiative, and work ethic, in securing your first job as an MLS graduate?				
To what extent have your interpersonal skills, such as communication, teamwork, and empathy, affected your ability to collaborate effectively in a laboratory setting?				
How significantly have traits such as adaptability,				

resilience, and professionalism contributed to your career development?				
To what extent have leadership qualities, such as decision-making, accountability, and problem-solving, influenced your consideration for leadership roles?				
How has your personality, including traits like perseverance, attention to detail, and commitment, impacted your job satisfaction and long-term career stability?				

Career Growth	1	2	3	4
How has continuous self-development, including communication, critical thinking, and problem-solving skills, improved your employment opportunities?				
To what extent have additional certifications and advanced training enhanced your ability to adapt to new challenges and remain competitive in your field?				
How has a commitment to lifelong learning and personal growth strengthened your leadership potential and career advancement?				
To what extent have soft skills such as teamwork, time management, and adaptability contributed to your job performance and professional development?				
How has self-improvement in areas like emotional intelligence, networking, and conflict resolution influenced your long-term career progression?				

Section V: Contributors to Employability

13. Rate the following questions based on your experience during your internship and clinical training, and how much they contributed to your employability after graduation.

1 - Minimally | 2 - Fairly | 3 - Moderately | 4 - Highly

Quality of Training	1	2	3	4
In your opinion, how well did the quality of training during your internship prepare you for employability?				
How effective was the firsthand experience you gained during your internship in enhancing your employability in the medical laboratory field?				
How valuable was the mentorship you received during your internship in improving your employability?				
In your experience, how much did the quality of training you received influence your job prospects?				
To what extent did your internship training help you apply academic knowledge to real-world situations, enhancing your employability?				

Facility Where Internship is Affiliated	1	2	3	4
How important was the reputation of the internship facility in enhancing your employability?				
How much did the availability of advanced equipment and technology at the internship facility impact your employability?				
In your view, how did the work environment at the internship facility contribute to your readiness for your employability?				
How influential was the diversity of cases and samples handled at the internship facility in contributing to your employability by enhancing your practical skills and job readiness?				

Section VI: Feedback on LORMA Colleges

14. What aspects of the program at LORMA Colleges were the most beneficial for your career preparation? **(Select all that apply):**

- ☐ Academic coursework
- ☐ Internship Program
- ☐ Skills training
- ☐ Career services/job placement assistance
- ☐ Faculty mentorship

15. What would you suggest for the improvement of the Medical Laboratory Science program at LORMA Colleges? **(Open-ended)**

Your participation in this questionnaire is completely confidential. All responses will be anonymized and used solely for research purposes, ensuring your privacy and security. We greatly appreciate your honest feedback, as it will contribute significantly to our research findings and advance our understanding of the employment outcomes of Medical Laboratory Science graduates.

If you have any additional comments or suggestions, please include them below:

APPENDIX M

PHOTO DOCUMENTATIONS



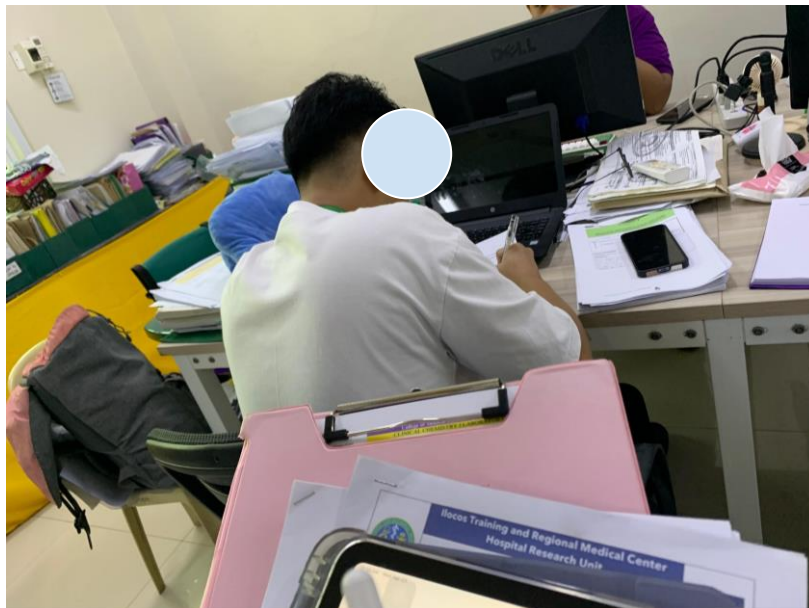
Consultation with the research adviser regarding research revisions.



Conducting data computations under the guidance of the statistician.



Reviewing 2021-2024 yearbooks to identify and trace graduates for subsequent data gathering.



Gathering research data from the faculty office.



Collecting data from multiple hospitals for the study.

DATA GATHERING - PATHWAYS TO SUCCESS

Questions Responses **146** Settings

146 responses



Summary

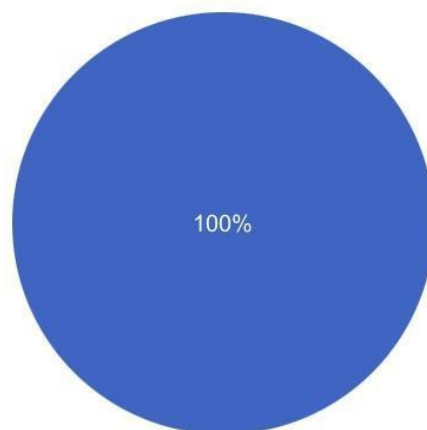
Question

Individual

146 responses



Copy chart



- I have read and understood the information provided above and agree to participate in this study.
- I do not wish to participate in this study.

Total number of responses recorded in the Google Form.

APPENDIX N

GENERAL RESEARCH TIMETABLE



LORMA COLLEGE OF MEDICAL LABORATORY SCIENCE
 Campus for Health Sciences, Carlatan, City of San Fernando, La Union, Philippines,
 2500 Facebook: @LormaCMLS | E-mail: cmls@lorma.edu



GENERAL RESEARCH TIMETABLE/GANTT CHART

Title of the study: Pathways to Success: Determinants of Employment Outcomes for Medical Laboratory Science Graduates

Proponents: Ma. Edilyn A. Abuan, Aaron Gerald N. Bugayong, Justin James G. Estepa, Jasmine Joy V. Mique, Dhanica Faye O. Olaviano, Erieza Katrina L. Tabugno

Timetable	Research Task	Status
August - September 2024	1. Preparation of Research Manuscript - Deriving the research topic from the original study - Identifying gaps in the research and setting clear objectives - Research title formulation - Review of relevant literature and establishing a theoretical framework - Validation and survey of appropriate methodologies	Completed
September 18, 2024	1. Appointment of a Research Adviser - Letter addressed to the research adviser of the study - Obtain approval of the CMLS Dean and CMLS Research Instructor	Completed
October 18, 2024	1. Appointment of a statistician - Letter addressed to the statistician - Secure the statistician's approval of the statistician	Completed
November 2024	1. Revision of Chapter 1 and Chapter 2 - Comply with corrections, comments, and suggestions provided by the research instructor and research adviser - Resubmission of the edited manuscript to the research adviser	Completed
December 5, 2024	1. Proposal defense proper - Ensure all materials and documents for the proposal defense are prepared and submitted on time - Take note of the suggestions and recommendations of the panel for further improvements of the study	Completed
January - February 2025	1. Post-revision of Chapter 1 and Chapter 2 after the proposal defense - Revise Chapters 1 and 2 based on corrections, comments, and suggestions gathered during the proposal defense - Ensure revisions are aligned with the input of the research adviser - Submission of the revised research paper to the research adviser for checking	Completed



February - March 2025	- Research proposal approval by the CMLS-RTP - Preparation of necessary documents for application - Verification of the technicalities of paper - Checks completeness and format of the research manuscript - Research protocol approval by the LC-REC - Implementation of ethical and environmental consideration, and examination of the experimental procedure in terms of safety and feasibility - Revision based on the comments and suggestions of the LC-REC - Application as an institutional research project - Approval by the Research Chairman, Director for Center for Health Science, and College President	Completed
March 2025	- Submission of Compliance Report to the LC-REC - Preparation of materials and necessary documents - Letter addressed to the CMLS Dean to request participation of graduates - Initial development and finalization of questionnaires - Perform Validity testing of the survey instrument - Letters addressed to validators requesting assistance for validation of the survey instrument - Disseminate the letters and survey instrument evaluation to the validators for their review - Send the results to the statistician for validation of the questionnaire and obtain the results	Completed
March - April 2025	- Revision of the questionnaire based on the comments and suggestions of the validators - Perform Reliability testing of the survey instrument - Letters addressed to different medical institutions in City of San Fernando, La Union for conduct of data gathering - Include MLS graduates from 2021 or earlier as respondents for the reliability testing - Dissemination of letters, consent forms, and scheduling of surveys - Provide questionnaires to participants through Google Forms and physical copies - Send the collected survey results to the statistician for statistical treatment to ensure credibility and reliability of the results - Obtain the results of the reliability test to the statistician - Perform Data Gathering - Recruitment of respondents (graduates of Medical Laboratory Science from 2021 to 2024) through social media and other forms of communication - Letter addressed to the different medical institution in City of San Fernando, La Union, requesting permission to conduct data gathering - Obtain formal approval from the medical institutions to proceed with data gathering - Dissemination of consent forms and coordinate survey schedules - Conduct data gathering through surveys using Google forms and physical copies of the questionnaires - Obtain the results from the data gathering - Send the collected survey results to the statistician for statistical treatment - Submission of Progress Report to the LC-REC	Completed
April 2025	- Data Analysis and Interpretation - Encoding of collected data - Statistical analysis and interpretation of results - Discussion and examination of findings with research	Completed



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	adviser and expert input • Integration of findings into the research manuscript	
April - May 2025	1. Writing and Finalization • Revision based on adviser and panel feedback • Final formatting and submission of the research manuscript • Final oral defense of the study findings • Revisions and resubmission of manuscript after the final oral defense • Submission of Final Report to the LC-REC • Submission of Bound and Fully-Signed Manuscript	Completed

APPENDIX O

PLAGIARISM CHECKER



Menu

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Chapter I

Goals88 Overall score

CHAPTER I

INTRODUCTION

In today's competitive healthcare landscape, the ability to secure meaningful employment after graduation has become a key measure of success for professionals in specialized fields like Medical Laboratory Science. For graduates, the journey from the classroom to a successful career is shaped by numerous factors, ranging from academic preparation to external market forces. Medical Laboratory Science professionals are a group of highly qualified experts who analyze biologic specimens and provide precise results for diagnosing medical conditions and tracking treatment outcomes (Kaur, 2023). With the demand for healthcare services and technological advancements on the rise, the need for skilled and knowledgeable graduates in this field has never been greater. For many Medical Laboratory Science (MLS) graduates, securing employment within a reasonable time after graduation is not only a measure of personal success but also a reflection of the quality of education and

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645 words ^

Review suggestions

Write with generative AI

19 Check for AI text & plagiarism



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[See all suggestions](#)

Chapter I



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Chapter II

Goals84 Overall score

CHAPTER II

METHODOLOGY

Research Design This study adopts a quantitative research approach, as it focuses on the collection and analysis of numerical data to conclude. The quantitative approach allows for the collection of numerical data that can be statistically analyzed to identify patterns, relationships, and trends. Specifically, a descriptive-correlational design will be utilized in this research to describe the current state of the employment outcomes and examine relationships among key variables. By utilizing a structured online survey questionnaire, the study will gather measurable data from participants to enable the researchers to assess correlations and significant differences among the variables of interest. This will allow the researchers to identify key factors that may influence employment outcomes, providing valuable insights into how demographic characteristics, educational background, and professional experiences contribute to job placement and career success. This information can

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1,114 words ^

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Chapter II

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CHAPTER III

RESULTS AND DISCUSSION

This chapter presented and interpreted the study's findings, which evaluated the employment outcomes of Medical Laboratory Science (MLS) graduates from LORMA Colleges, focusing on their employability, career paths, and factors influencing job success. A total of 146 participants, consisting of MLS graduates from 2021 to 2024, participated in the study.

The results are structured around the study's key objectives: (1) assessing the academic background of the graduates, including their General Weight Average (GWA), licensure exam performance, and year of graduation; (2) evaluating the employment rate of LORMA Colleges' MLS graduates in medical technology roles and other fields; (3) identifying the factors influencing employability, such as academic performance, internship experiences, competencies, and professional networking; and

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11,737 words ^

Chapter III

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Chapter 4

Goals97 Overall score

CHAPTER IV

CONCLUSIONS AND RECOMMENDATIONS

This chapter summarizes the study and the results obtained from data gathering and analysis. Based on these findings, conclusions were drawn. Recommendations were provided to explore the impact of internship quality, institutional support, and employer expectations on the employability of Medical Laboratory Science (MLS) graduates.

Summary of Findings

The study set out to find the employment outcomes of Medical Laboratory Science (MLS) graduates from LORMA Colleges from 2021 to 2024. It used a quantitative approach and followed a descriptive-correlation method. A Likert scale questionnaire was used; it had 4 for highly influential, 3 for moderately influential, 2 for fairly influential, and 1 for least influential. The data were treated using descriptive statistics.

The following appropriate findings were drawn from the study's analysis:

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Chapter IV

Review suggestions

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See all suggestions

APPENDIX P

GRAMMAR CHECKER

Performance

Great job! Your text scores 100 out of 100. This score represents the quality of writing in this document.



Word count

Characters	7,819	Reading time	4 min 20 sec
Words	1,084	Speaking time	8 min 20 sec
Sentences	47		

Readability

Metrics compared to other Grammarly users

Word length	6.1		Above average
Sentence length	23.1		Above average
Readability score	12		

Your text is likely to be understood by college graduates but may not be easy for many to read.

Vocabulary

Metrics compared to other Grammarly users

Unique words	41%		Below average
Rare words	40%		Below average

Chapter I

Performance

Great job! Your text scores 100 out of 100. This score represents the quality of writing in this document.



Word count

Characters	26,128	Reading time	14 min 17 sec
Words	3,572	Speaking time	27 min 28 sec
Sentences	168		

Readability

Metrics compared to other Grammarly users

Word length	6.1		Above average
Sentence length	21.3		Above average
Readability score	14		

Your text is likely to be understood by college graduates but may not be easy for many to read.

Vocabulary

Metrics compared to other Grammarly users

Unique words	26%		Below average
Rare words	45%		Below average

Chapter II

Performance

Great job! Your text scores 100 out of 100. This score represents the quality of writing in this document.



Word count

Characters	85,331	Reading time	47 min 0 sec
Words	11,754	Speaking time	1 hr 30 min
Sentences	652		

Readability

Metrics compared to other Grammarly users

Word length	5.9		Above average
Sentence length	18		Above average
Readability score	18		

Your text is likely to be understood by college graduates but may not be easy for many to read.

Vocabulary

Metrics compared to other Grammarly users

Unique words	15%		Below average
Rare words	46%		Below average

Chapter III

Performance

Great job! Your text scores 100 out of 100. This score represents the quality of writing in this document.



Word count

Characters	13,945	Reading time	7 min 35 sec
Words	1,900	Speaking time	14 min 36 sec
Sentences	90		

Readability

Metrics compared to other Grammarly users

Word length	6.1		Above average
Sentence length	21.1		Above average
Readability score	15		

Your text is likely to be understood by college graduates but may not be easy for many to read.

Vocabulary

Metrics compared to other Grammarly users

Unique words	30%		Below average
Rare words	45%		Below average

Chapter IV

APPENDIX Q

GRADUATES STATISTICS OF MLS

LORMA COLLEGES
San Fernando City, La Union

GRADUATE STATISTICS BATCH 2021

COURSE	February 8, 2021	July 23, 2021	September 10, 2021	TOTAL
Master of Arts in Nursing				1
Master in Information System				
Bachelor of Arts: Major in Psychology				
Bachelor of Secondary in Education major in Mathematics				
Bachelor of Special Needs Education *New				
Bachelor of Science in Business Management				
Bachelor of Science in Business Administration major in Marketing Management				
Bachelor of Science in Business Administration major in Financial Management				
Bachelor of Science in Business Administration major in Human Resource Management				
Bachelor of Science in Accountancy				
Bachelor of Science in Hospitality Management				
Bachelor of Science in Hotel and Restaurant Management				
Bachelor of Science in Tourism Management				
Bachelor of Science in Travel and Tour Management				
Bachelor of Science in Computer Engineering				
Bachelor of Science in Computer Science				
Bachelor of Science in Information Technology				
Bachelor in Medical Laboratory Science	5	40		45
Bachelor of Science in Nursing				
Bachelor of Science in Pharmacy				
Bachelor of Science in Exercise and Sports Sciences *New				
Bachelor of Science in Physical Therapy				
Bachelor of Science in Respiratory Therapy				
Bachelor of Science in Radiologic Technology				
Biomedical, Electronics and Computer Technology				
Digital Imaging Technology				
TOTAL				



LORMA COLLEGES
San Fernando City, La Union

GRADUATE STATISTICS BATCH 2022

COURSE	January 28, 2022	June 22-23, 2022	August 20, 2022	TOTAL
Master of Arts in Nursing		2	1	3
Master in Information System				
Bachelor of Arts: Major in Psychology				
Bachelor of Secondary in Education major in Mathematics				
Bachelor of Special Needs Education *New				
Bachelor of Science in Business Management				
Bachelor of Science in Business Administration major in Marketing Management				
Bachelor of Science in Business Administration major in Financial Management				
Bachelor of Science in Business Administration major in Human Resource Management				
Bachelor of Science in Accountancy				
Bachelor of Science in Hospitality Management				
Bachelor of Science in Hotel and Restaurant Management				
Bachelor of Science in Tourism Management				
Bachelor of Science in Travel and Tour Management				
Bachelor of Science in Computer Engineering				
Bachelor of Science in Computer Science				
Bachelor of Science in Information Technology				
Bachelor in Medical Laboratory Science		3	1	4
Bachelor of Science in Nursing				
Bachelor of Science in Pharmacy				
Bachelor of Science in Exercise and Sports Sciences *New				
Bachelor of Science in Physical Therapy				
Bachelor of Science in Respiratory Therapy				
Bachelor of Science in Radiologic Technology				
Biomedical, Electronics and Computer Technology				
Digital Imaging Technology				
TOTAL				



LORMA COLLEGES
San Fernando City, La Union

GRADUATE STATISTICS BATCH 2023

COURSE	JANUARY 27, 2023	June 22- 23, 2023	August 18, 2023	TOTAL
Master of Arts in Nursing				
Master in Information System				
Bachelor of Arts: Major in Psychology				
Bachelor of Secondary in Education major in Mathematics				
Bachelor of Special Needs Education *New				
Bachelor of Science in Business Management				
Bachelor of Science in Business Administration major in Marketing Management				
Bachelor of Science in Business Administration major in Financial Management				
Bachelor of Science in Business Administration major in Human Resource Management				
Bachelor of Science in Accountancy				
Bachelor of Science in Hospitality Management				
Bachelor of Science in Hotel and Restaurant Management				
Bachelor of Science in Tourism Management				
Bachelor of Science in Travel and Tour Management				
Bachelor of Science in Computer Engineering				
Bachelor of Science in Computer Science				
Bachelor of Science in Information Technology				
Bachelor in Medical Laboratory Science	49	8	15	72
Bachelor of Science in Nursing				
Bachelor of Science in Pharmacy				
Bachelor of Science in Exercise and Sports Sciences *New				
Bachelor of Science in Physical Therapy				
Bachelor of Science in Respiratory Therapy				
Bachelor of Science in Radiologic Technology				
Biomedical, Electronics and Computer Technology				
Digital Imaging Technology				
TOTAL				



LORMA COLLEGES
San Fernando City, La Union

GRADUATE STATISTICS BATCH 2024

COURSE	January 19, 2024	JUNE 19-20, 2024	AUGUST 12, 2024	TOTAL
Master of Arts in Nursing				
Master in Information System				
Bachelor of Arts: Major in Psychology				
Bachelor of Secondary In Education major In Mathematics				
Bachelor of Special Needs Education *New				
Bachelor of Science in Business Management				
Bachelor of Science in Business Administration major In Marketing Management				
Bachelor of Science in Business Administration major In Financial Management				
Bachelor of Science in Business Administration major in Human Resource Management				
Bachelor of Science in Accountancy				
Bachelor of Science in Hospitality Management				
Bachelor of Science in Hotel and Restaurant Management				
Bachelor of Science in Tourism Management				
Bachelor of Science in Travel and Tour Management				
Bachelor of Science in Computer Engineering				
Bachelor of Science in Computer Science				
Bachelor of Science in Information Technology				
Bachelor In Medical Laboratory Science	67	36	2	105
Bachelor of Science in Nursing				
Bachelor of Science in Pharmacy				
Bachelor of Science in Exercise and Sports Sciences *New				
Bachelor of Science in Physical Therapy				
Bachelor of Science in Respiratory Therapy				
Bachelor of Science in Radiologic Technology				
Biomedical, Electronics and Computer Technology				
Digital Imaging Technology				
TOTAL				

APPENDIX R
STATISTICIAN CERTIFICATION



GENERAL EDUCATION DEPARTMENT
Campus for Health Sciences
Carlatan, San Fernando City, La Union

May 6, 2025

CERTIFICATION

This is to certify that the research entitled **"PATHWAYS TO SUCCESS: DETERMINANTS OF EMPLOYMENT OUTCOMES FOR MEDICAL LABORATORY SCIENCE GRADUATES OF LORMA COLLEGES"** by Ma. Edilyn A. Abuan, Aaron Gerald N. Bugayong, Justin James G. Estepa, Jasmine Joy V. Mique, Dhanica Faye O. Olaviano, and Erieza Katrina L. Tabugno, third year students taking the degree Bachelor in Medical Laboratory Sciences of LORMA Colleges, had had been checked and statistically analyzed by the undersigned.

This certification is issued to ensure that the institution received quality research work. Signed this 6th day of May, 2025.


JEROME P. VERA
Statistician

Authors' Biodata

Ma. Edilyn A. Abuan, Aaron Gerald N. Bugayong, Justin James G. Estepa, Jasmine Joy V. Mique, Dhanica Faye O. Olaviano, and Erieza Katrina L. Tabugno are Bachelor of Medical Laboratory Science students at LORMA Colleges, dedicated to understanding career pathways and employment trends of MLS graduates to enhance professional readiness and academic impact.



Ma. Edilyn Abuan is a passionate Medical Laboratory Science student at LORMA Colleges. She finds joy in learning and exploring new ideas, especially in research. Known for her curiosity and dedication, she hopes to make a difference in healthcare by combining knowledge, compassion, and a genuine desire to help others.



Aaron Gerald Bugayong is pursuing a degree in Medical Laboratory Science at LORMA Colleges. His academic journey reflects a strong foundation and commitment to his field of study. As the leader of his group, he demonstrates initiative, teamwork, and dedication. Though he is quiet, his actions speak volumes.



Justin James G. Estepa is pursuing a degree in Medical Laboratory Science at LORMA Colleges. He is known for his unwavering determination, much like “the man who can’t be moved.” His dedication to studies and personal growth reflects his strong character and commitment to achieving success in his chosen field.



Jasmine Joy Mique studies Medical Laboratory Science at LORMA Colleges with purpose and heart. Guided by curiosity, she explores how education shapes opportunity. Her work reflects a quiet belief: that behind every professional path

is a ripple effect, reaching lives and communities through dedication, skill, and responsibility.



Dhanica Faye Olaviano is a motivated student of Medical Laboratory Science at LORMA Colleges. Her academic journey is marked by curiosity, collaboration, and a desire to make a difference. She believes in research's power to improve employment readiness and is dedicated to promoting excellence in laboratory practice and public health.



Erieza Katrina Tabugno is an insightful Medical Laboratory Science student at LORMA Colleges. She believes her studies will prepare her for her career, where she aims to contribute to research with a tangible impact on improving patient care and promoting health equity. Erieza also has a keen interest in philanthropy.