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Graduate Perceptions of Medical Technology Program Quality and Contributions to Job Readiness at Centro Escolar University

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Abstract

Graduate feedback provides an important basis for determining whether higher education programs remain aligned with professional and industry requirements. This study assessed graduates' perceptions of the quality of the Centro Escolar University Medical Technology program and the contribution of academic preparation, competencies, and internship experience to job readiness. A descriptive quantitative design was employed. Using convenience sampling, the researchers obtained responses from 247 graduates from the 2015-2024 cohorts out of a reported population of 2,358 alumni. Data were collected through a researcher-developed structured questionnaire administered in printed and online formats and analyzed using frequencies, percentages, means, and standard deviations. Of the respondents, 83.0% were employed, including 78.1% in full-time positions. Most employed respondents worked locally and were engaged in clinical, hospital, or diagnostic laboratory settings. Graduates rated the overall quality of the Medical Technology program favorably (M = 4.22). Courses in the curriculum received the highest program-quality rating (M = 4.38), while the teaching and learning environment received the lowest (M = 4.07). Factors perceived to contribute to job readiness obtained an overall mean of 4.15. Internship experience received the highest rating (M = 4.43), whereas competency and skills received the lowest (M = 3.65). The findings indicate that graduates generally perceived the curriculum, instruction, and internship program as supportive of their transition into employment. Continuous program review should strengthen transferable, interpersonal, managerial, and technology-related competencies while sustaining structured clinical internship experiences.

Keywords: *clinical internship; curriculum quality; graduate employability; job readiness; medical technology education; tracer study*

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1. Introduction

Medical Technology education occupies a critical position in the preparation of laboratory professionals who support disease diagnosis, treatment monitoring, public health surveillance, and healthcare decision-making. Graduates entering the profession are expected to possess scientific knowledge, technical laboratory competence, analytical ability, professional judgment, communication skills, and the capacity to adapt to increasingly automated and technology-dependent work environments. The effectiveness of a Medical Technology program therefore depends not only on the breadth of its academic content but also on how well its curriculum, instructional practices, learning environment, and clinical training prepare students for actual professional responsibilities.

The changing nature of laboratory practice has intensified the need for continuous program evaluation. Advances in molecular diagnostics, automation, laboratory information systems, quality management, and data-driven healthcare have expanded the competencies expected of entry-level laboratory professionals. Waheed et al. (2023) emphasized that contemporary medical laboratory education must respond to technological developments and evolving professional roles. Similarly, Pearse and Scott (2023) observed that clinical laboratory education must remain adaptable to changes in training delivery, professional progression, and workplace requirements, particularly following the disruptions caused by the COVID-19 pandemic. These developments suggest that educational programs cannot rely solely on established curricular content; they must regularly examine whether graduates perceive their preparation as relevant to the realities of current practice.

Clinical internship is particularly important in Medical Technology education because it provides the setting in which students apply classroom knowledge to actual laboratory procedures and professional situations. Structured clinical exposure allows students to develop technical proficiency, confidence, professional discipline, communication skills, and familiarity with institutional protocols. Sharma et al. (2022) found that graduates generally valued organized clinical practicum experiences, although concerns remained regarding the duration of training, evaluation systems, and the development of managerial and interpersonal competencies. Bawica (2021) likewise highlighted the role of internship programs in strengthening employability readiness by exposing students to workplace expectations and practical responsibilities. These findings indicate that internship quality should be treated as a major component of graduate preparation rather than as an ancillary feature of the curriculum.

The relationship between academic preparation and job readiness is also shaped by the extent to which programs develop both technical and transferable competencies. Earlier research involving Medical Technology graduates found that professional laboratory skills, safe work practices, professional responsibility, and leadership-related competencies were perceived as important outcomes of academic and internship preparation (Valdez, 2010). However, competencies involving communication, teamwork, critical thinking, problem-solving, and decision-making may require further development through sustained professional exposure. This pattern is consistent with broader evidence showing that health sciences graduates benefit from curricula that integrate disciplinary knowledge, clinical application, and employability-oriented competencies (Saong et al., 2023).

Graduate tracer and program-evaluation studies provide one means of determining how educational experiences are perceived after students transition into employment. Through graduate feedback, institutions can examine whether course content remains relevant, whether instruction adequately supports competency development, whether the learning environment facilitates professional preparation, and whether internship experiences reflect workplace demands. Quinto and Posada (2020), in a tracer study of Medical Technology graduates, reported that graduates generally viewed their academic preparation positively, while also identifying areas in which broader professional and interpersonal skills could be strengthened. Such studies demonstrate the value of examining program quality from the perspective of graduates who have already encountered employment requirements.

Centro Escolar University has offered a Medical Technology program that combines academic coursework, laboratory instruction, and clinical internship. However, program achievements, accreditation status, and licensure performance alone do not fully establish how graduates perceive the program's contribution to their readiness for employment. Institutional evidence is needed to determine whether graduates consider the curriculum relevant, the instruction effective, the learning environment supportive, and the internship experience adequate for professional transition. It is also necessary to identify which aspects of preparation are perceived as strongest and which may require further development.

The present study addresses this need by examining graduates from the 2015-2024 cohorts of the Centro Escolar University Medical Technology program. The study focuses on graduate perceptions rather than attempting to measure causal program impact or objective workplace performance. This distinction is important because the use of self-reported data and a descriptive research design permits conclusions regarding perceived program quality and perceived contribution to job readiness, but not direct causal claims. Nevertheless, graduate assessments provide institutionally relevant evidence that can inform curriculum review, instructional planning, internship design, and competency development.

This study aimed to assess graduate perceptions of the quality of the Centro Escolar University Medical Technology program and its contribution to job readiness. Specifically, it sought to:

1. describe the demographic and professional profile of graduates from the 2015-2024 cohorts;
2. assess graduates' perceptions of program quality in terms of courses in the curriculum, quality of instruction, teaching and learning environment, and overall internship experience;
3. determine the perceived contribution of academic preparation, competencies and skills, and internship experience to job readiness; and
4. identify the relative strengths and areas for improvement in the program based on the graduates' assessments.

2. Review of Related Literature

2.1 Curriculum Quality and Academic Preparation

The curriculum provides the formal structure through which Medical Technology students acquire the scientific knowledge, technical foundations, and professional competencies required for laboratory practice. Its relevance to job readiness depends on whether course content reflects current professional standards, technological developments, and the competencies expected in healthcare settings. Medical laboratory education must therefore extend beyond the transmission of established scientific principles and remain responsive to developments in automation, molecular diagnostics, laboratory information systems, quality assurance, and data management (Waheed et al., 2023).

The relationship between curriculum quality and graduate employability has also been examined within health sciences education. Saong et al. (2023) found that graduates generally regarded curriculum relevance, quality instruction, internship preparation, and preparation for professional examinations as important contributors to employability. Their findings suggest that a curriculum becomes more professionally useful when foundational, preprofessional, and specialized courses are coherently connected to workplace expectations. Academic preparation should therefore be assessed not only according to the technical content covered but also according to whether graduates can apply knowledge, interpret laboratory information, solve workplace problems, and respond appropriately to changing professional situations.

Philippine evidence from allied-medicine programs further shows that formal curricular design does not necessarily guarantee uniform implementation. Quinto (2020) reported that outcomes-based education was viewed as fully implemented by faculty but only partially implemented by students, with continuing concerns involving portfolio feedback, instructional materials, and the use of varied teaching methods. This difference between faculty and student assessments underscores the importance of evaluating how intended curricular outcomes are translated into actual teaching and learning experiences.

Evidence from Medical Technology graduates in the Philippines similarly shows that curricula may develop some competencies more strongly than others. Valdez (2010) reported relatively strong professional laboratory skills, safe work practices, professional responsibility, and leadership and management competencies, while critical thinking, problem-solving, decision-making, communication, teamwork, computer-related abilities, and teaching responsibilities were comparatively less developed. These differences indicate that technical and scientific preparation may not automatically produce the full range of transferable competencies needed in professional practice.

The capacity of a curriculum to remain current also depends on institutional systems for reviewing instructional delivery and digital learning. In an adjacent Philippine higher-education context, Atento (2025) found that e-learning was widely adopted but often framed primarily as a mechanism for instructional continuity, leading to recommendations for curriculum audits, faculty development, and stronger institutional support. Although the study concerned management education, its institutional implications are relevant to professional programs that must align digital delivery with clearly defined competency outcomes.

Graduate tracer studies provide an additional basis for evaluating whether academic preparation remains relevant after students enter the labor market. Quinto and Posada (2020) found that Medical Technology graduates generally perceived their educational preparation as relevant to employment and professional responsibilities. Their findings nevertheless reinforced the need to examine employability as a multidimensional outcome involving technical competence, professional behavior, communication, adaptability, and continuing development. Curriculum quality should consequently be evaluated not only through accreditation or licensure outcomes but also through the experiences of graduates who have encountered actual workplace expectations.

2.2 Clinical Internship and Competency Development

Clinical internship is a central component of Medical Technology education because it enables students to apply theoretical knowledge under authentic laboratory conditions. Through supervised clinical exposure, students encounter actual specimens, instruments, quality-control procedures, documentation requirements, laboratory protocols, and professional relationships. Internship also provides opportunities to develop confidence, responsibility, time management, communication, teamwork, ethical conduct, and adaptability—competencies that may be difficult to cultivate exclusively through classroom and simulated instruction.

Bawica (2021) found that internship programs can support employability readiness by allowing students to connect academic learning with workplace tasks and expectations. The value of internship, however, depends on its relevance, organization, supervision, and capacity to provide meaningful participation rather than passive observation. A well-structured placement allows students to practice professional responsibilities, receive feedback, and recognize the standards by which their performance will be evaluated. Internship effectiveness should therefore be judged not only by completion of required hours but also by the quality and range of learning experiences provided.

In biomedical science education, Sharma et al. (2022) reported that graduates were generally satisfied with the content and organization of their clinical practicum. Nevertheless, participants identified areas requiring improvement, including the duration of clinical exposure, clarity of assessment criteria, and preparation for laboratory and financial management responsibilities. The study demonstrates that clinical training may adequately develop scientific and procedural knowledge while leaving gaps in administrative, managerial, and interpersonal competencies. This distinction is important because laboratory professionals may eventually assume responsibilities involving inventory control, procurement, personnel supervision, budgeting, and quality management in addition to routine analytical work.

These internship concerns also form part of broader structural pressures affecting health-professions education. Bermido et al. (2025) identified clinical-placement scarcity and curriculum-practice misalignment as interconnected constraints that influence learner preparedness and require coordinated leadership, faculty development, simulation, and clinical-partnership strategies. Their synthesis supports treating the availability, consistency, and educational quality of clinical placements as institutional concerns rather than as isolated student experiences.

The disruption of clinical education during the COVID-19 pandemic demonstrated both the usefulness and limitations of alternative training arrangements. Digital platforms, online assessments, and simulated learning allowed education to continue, but these approaches could not entirely reproduce the sensory, procedural, interpersonal, and contextual dimensions of direct laboratory experience (Pearse & Scott, 2023). The experience reinforced the need for flexible educational systems while affirming the continuing importance of supervised hands-on practice.

Evidence from the broader educational-technology literature likewise supports a complementary rather than substitutionary role for digital systems. Rao et al. (2025) found that respondents perceived AI-supported education as particularly useful for engagement, content relevance, and learning analytics, while perceived gains in academic performance were more moderate and implementation remained constrained by access, cost, privacy, bias, and training concerns. In clinical education, such tools may therefore extend feedback and preparation but should not be treated as replacements for supervised laboratory experience.

Internship should consequently be understood as an integrative educational process through which scientific knowledge, technical competence, professional conduct, and workplace adjustment are developed simultaneously. Its contribution to job readiness is likely to be strongest when clinical experiences are aligned with curricular outcomes, supervised consistently, assessed transparently, supported by appropriate learning technologies, and periodically reviewed in collaboration with partner institutions.

2.3 Graduate Employability and Workplace Readiness

Job readiness refers to the extent to which graduates perceive themselves as prepared to enter employment and perform the responsibilities associated with their profession. In Medical Technology, readiness involves more than the ability to conduct laboratory procedures. Graduates must also demonstrate accuracy, ethical judgment, quality consciousness, communication, teamwork, analytical reasoning, adaptability, and the capacity to learn new technologies and procedures.

Tracer studies are useful in examining these outcomes because they connect educational experiences with graduates' employment situations and retrospective assessments of their preparation. Quinto and Posada (2020) found that Medical Technology graduates commonly entered employment related to their degree and generally regarded their academic program as useful to their professional transition. Such findings indicate that program relevance can be partly assessed through employment alignment and graduates' evaluations of how well their education prepared them for professional responsibilities.

Employment alone, however, does not provide a complete measure of job readiness. A graduate may obtain work while still encountering deficiencies in communication, leadership, problem-solving, technology use, or managerial competence. Valdez (2010) observed that competencies may develop unevenly, with laboratory and professional-responsibility skills receiving stronger assessments than several transferable and higher-order competencies. Graduate employment rates should therefore be interpreted together with information concerning the quality, relevance, and sustainability of employment and the competencies graduates use in their respective roles.

Health sciences curricula are more likely to support employability when academic content, professional competencies, and experiential learning are systematically integrated (Saong et al., 2023). Employers require graduates who can perform entry-level tasks while also adjusting to new equipment, changing procedures, interdisciplinary collaboration, and institutional quality systems. These expectations have become more pronounced as laboratory practice incorporates automation, molecular technologies, informatics, and increasingly complex regulatory requirements (Waheed et al., 2023).

Adjacent health-workforce analysis further indicates that readiness gaps increasingly involve competency alignment rather than headcount alone. Atento, Quinto, and Espelita (2025) identified language performance, specialized-care preparation, digital documentation, and destination-specific regulatory readiness as important constraints within the Philippine health-workforce pipeline. Although their analysis focused principally on nurses and caregivers, the underlying emphasis on aligning educational preparation with changing professional systems is applicable to other regulated health occupations.

The expansion of data-intensive healthcare also broadens the competencies expected of entry-level professionals. Atento, Quinto, Espelita, and Castaneda (2025) proposed a conceptual pathway in which data integration and analytics capability strengthen decision quality and support both clinical and organizational outcomes. As a contextual framework rather than direct employability evidence, it nevertheless clarifies why graduates increasingly need data literacy, system interoperability awareness, and the ability to interpret information across clinical and operational settings.

International evidence also shows that the development of job-ready laboratory professionals depends partly on the resources available for education and clinical training. Muhibi et al. (2024) identified infrastructure limitations, unequal access to technology, workforce constraints, and gaps between theoretical instruction and practical exposure as continuing challenges in medical laboratory education. Although these conditions differ across institutions and countries, they demonstrate that curriculum content alone is insufficient when students have limited opportunities to use contemporary equipment, engage in supervised practice, and participate in functioning laboratory systems.

Graduate readiness should therefore be treated as a multidimensional educational outcome. It reflects the combined contribution of curriculum relevance, instructional quality, learning resources, clinical exposure, personal and interpersonal competencies, digital capability, and the alignment between educational expectations and professional practice.

2.4 Synthesis and Research Gap

The reviewed literature consistently identifies academic preparation, curriculum relevance, competency development, and clinical internship as interrelated foundations of graduate job readiness. Medical Technology programs generally provide strong preparation in scientific knowledge, laboratory procedures, safe work practices, and professional responsibility (Valdez, 2010). Internship strengthens this preparation by allowing students to apply knowledge, develop confidence, and encounter actual workplace expectations (Bawica, 2021; Sharma et al., 2022). Graduate tracer studies further show that educational relevance can be assessed through employment outcomes and alumni perceptions of how adequately their programs prepared them for professional practice (Quinto & Posada, 2020; Saong et al., 2023).

The literature also reveals recurring areas for improvement. Communication, teamwork, critical thinking, managerial competence, information technology, and adaptability are not always developed to the same extent as technical laboratory skills. Training limitations may also arise from inadequate clinical exposure, uneven access to current technologies, unclear evaluation procedures, or insufficient integration of classroom and workplace learning (Muhibi et al., 2024; Pearse & Scott, 2023; Sharma et al., 2022).

Workplace quality systems illustrate why these wider capabilities matter after graduation. Garcia and Atento (2026) found that middle managers involved in hospital accreditation generally valued the quality-improvement

process but encountered substantial resource constraints and documentation burdens. Although the study examined managers rather than new graduates, it demonstrates the organizational environment in which health professionals must translate standards into documented, coordinated, and resource-sensitive practice.

Professional readiness also includes the capacity to interpret and communicate information without reducing healthcare to technical measurements alone. Atento, Quinto, Espelita, and San Juan (2025) proposed that narrative information can complement quantitative healthcare indicators when it is processed with interpretive, ethical, and cultural safeguards. This adjacent framework reinforces the relevance of communication, empathy, ethical data handling, and contextual judgment as competencies that complement laboratory accuracy and analytic proficiency.

Despite the availability of international studies and tracer research from other Philippine institutions, limited published evidence specifically documents how graduates of the Centro Escolar University Medical Technology program evaluate its curriculum, instruction, learning environment, internship experience, and contribution to their job readiness. Institutional accreditation and licensure outcomes offer important indicators of program quality, but they do not substitute for systematic graduate feedback. The present study addresses this gap by examining the perceptions and employment profiles of graduates from the 2015-2024 cohorts. It provides institution-specific evidence that may support curriculum review, internship planning, instructional improvement, and the further development of technical, transferable, digital, and professional competencies.

3. Methodology

3.1 Research Design

The study employed a descriptive quantitative research design to examine graduates' perceptions of the quality of the Centro Escolar University Medical Technology program and its contribution to job readiness. The design was appropriate because the study focused on describing respondents' employment characteristics and summarizing their assessments of the curriculum, instruction, learning environment, internship experience, academic preparation, and competencies. The study did not test causal relationships; therefore, the findings are interpreted as self-reported perceptions rather than evidence of direct program impact.

3.2 Respondents and Sampling

The respondents were graduates of the Bachelor of Science in Medical Technology program of Centro Escolar University from the 2015-2024 cohorts. The reported graduate population for the covered period was 2,358, from which 247 respondents participated in the study.

Convenience sampling was used because respondents were recruited based on their accessibility and willingness to participate. Eligible respondents were graduates of the program within the specified ten-year period. Graduates who completed the program before 2015 were excluded.

The inclusion of graduates from several cohorts allowed the study to capture both recent employment experiences and the perspectives of alumni with longer exposure to professional practice. However, because participation was voluntary and the sample was not randomly selected, the findings should not be interpreted as statistically representative of all graduates from the 2015-2024 cohorts.

3.3 Research Instrument

Data were collected using a researcher-developed structured questionnaire administered in printed and online formats. The online version was created using Google Forms. The instrument contained items covering respondent demographic and professional characteristics; courses in the curriculum; quality of instruction; teaching and learning environment; overall internship experience; academic preparation; competency and skills; and perceived contribution of the program to job readiness.

The perception items were rated using a five-point response scale, with higher scores indicating more favorable assessments. The numerical means and standard deviations served as the principal basis for interpreting the responses.

No reliability coefficient was available for reporting. Accordingly, the results are interpreted as descriptive evidence of the respondents' assessments rather than as validation of a standardized measurement instrument.

3.4 Data Gathering Procedure

Before data collection, the researchers obtained approval from the research adviser and submitted the study protocol to the institutional ethics review body. Following approval, a formal request was sent to the Dean of the School of Medical Technology.

The questionnaire was distributed through both printed and online channels. Printed copies were provided to accessible alumni, while the online questionnaire was disseminated through email, Facebook Messenger, and alumni group chats. Respondents were informed of the purpose of the study and the voluntary nature of their participation. They were also assured that their responses would be treated confidentially.

Data collection was conducted over a two-week period. After collection, the responses were compiled, organized, and prepared for analysis using Microsoft Excel.

3.5 Data Analysis

Frequency counts and percentages were used to summarize categorical variables, including year of graduation, employment status, location of employment, and field of employment.

Means and standard deviations were used to summarize responses to the five-point perception items. Composite means were reported for the major program-quality and job-readiness domains. Higher mean scores indicated more favorable graduate perceptions.

Because the study used convenience sampling and descriptive statistics, no inferential claims were made regarding differences, relationships, prediction, or causality. The statistical results were interpreted only within the participating sample.

3.6 Ethical Considerations

The study protocol received institutional ethics review approval before data collection. Participation was voluntary, and respondents were informed of the study's purpose. Confidentiality was maintained by reporting the findings in aggregate form rather than identifying individual graduates.

No personally identifying information was included in the reported results. The researchers also limited the use of collected data to the purposes stated in the study.

4. Results and Discussion

4.1 Graduate Profile and Employment Characteristics

The respondents were graduates of the Centro Escolar University Bachelor of Science in Medical Technology program from the 2015-2024 cohorts. Most respondents were between 20 and 30 years old, accounting for 94.7% of the sample. The sample was concentrated among recent graduates. Ninety-two respondents graduated in 2024, representing 37.2% of the 247 respondents, while 55 respondents, or 22.3%, graduated in 2023. Thus, almost three-fifths of the participants belonged to the two most recent graduating cohorts.

This concentration provides a relatively current assessment of the program but also limits the extent to which the findings represent graduates from earlier cohorts. Recent graduates may have more immediate recollections of their academic and internship experiences, but they may also have had less time to establish long-term careers or assume supervisory and managerial responsibilities.

Of the 247 respondents, 193, or 78.1%, were employed full-time, while 12, or 4.9%, were employed part-time. Forty-two respondents, representing 17.0%, were unemployed at the time of data collection. Combining full-time and part-time employment, 205 respondents, or 83.0%, were employed.

Among the 205 employed graduates, 185, or 90.2%, were working in the Philippines, while 20, or 9.8%, were employed overseas. The reported frequencies indicate that employment remained predominantly domestic, although a small proportion of the graduates had entered international labor markets.

Clinical, hospital, and diagnostic laboratories represented the principal employment settings. Of the employed respondents, 183, or 89.3%, worked in these settings. Seven respondents, or 3.4%, were employed in the academe, while 15, or 7.3%, worked in other occupational sectors. The predominance of laboratory-based employment indicates a generally close alignment between the graduates' degree preparation and their current professional roles.

The high proportion of graduates employed in fields directly related to Medical Technology suggests that the program serves as an important entry pathway into laboratory practice. Nevertheless, employment status alone should not be treated as conclusive evidence of program effectiveness. Employment may also be influenced by licensure status, labor-market conditions, personal networks, geographic mobility, postgraduate training, and individual career preferences.

4.2 Perceived Quality of the Medical Technology Program

Table 1 presents the graduates' assessments of four dimensions of program quality. All dimensions received mean ratings above 4.00 on the five-point scale.

Table 1. *Graduate Ratings of Medical Technology Program Quality*

Program-quality dimension	Mean	Standard deviation
Courses in the curriculum	4.38	0.69
Quality of instruction	4.17	0.75
Teaching and learning environment	4.07	0.86
Overall internship experience	4.25	0.94
Overall mean	**4.22**	**-**

Note. Ratings were measured on a five-point scale, with higher values indicating more favorable assessments. An overall standard deviation was not reported because respondent-level composite data were unavailable.

The courses in the curriculum received the highest mean rating at 4.38, with a standard deviation of 0.69. This result indicates that the respondents generally viewed the curriculum as relevant and appropriate to their academic and professional preparation. The relatively lower standard deviation also suggests greater consistency in graduates' assessments of the curriculum compared with their assessments of the other dimensions.

The overall internship experience obtained the second-highest mean of 4.25. This finding indicates that clinical exposure was viewed as a major strength of the program. The standard deviation of 0.94, however, was the highest among the four dimensions. Although the overall assessment was favorable, the wider dispersion suggests that the quality of internship experiences may have varied across respondents. Differences may have arisen from the type of clinical affiliation, supervision, assigned laboratory sections, training period, institutional resources, or learning modality.

Quality of instruction received a mean of 4.17, indicating that graduates generally evaluated faculty teaching and instructional support positively. This result suggests that instructors were perceived as effective in delivering the scientific and professional content of the program. However, the lower rating relative to the curriculum and internship dimensions indicates that instructional improvement remains possible, particularly in approaches that integrate problem-solving, technology use, case interpretation, and workplace-based applications.

The teaching and learning environment received the lowest mean at 4.07, although it remained favorable. Its standard deviation of 0.86 indicates some variation in respondents' experiences. The result may reflect differences in access to laboratory facilities, equipment, learning materials, student support, classroom conditions, or technology-mediated instruction. Because the sample included graduates who studied before, during, and after the major disruptions associated with the COVID-19 pandemic, perceptions of the learning environment may also have been influenced by differences in instructional modality and access to direct laboratory practice.

Overall, the program received a mean rating of 4.22. The findings indicate that graduates viewed the curriculum, instruction, learning environment, and internship experience positively. The relative ordering of the indicators identifies the curriculum and internship as the strongest program dimensions, while the teaching and learning environment represents the most evident area for further review.

4.3 Perceived Contributions to Job Readiness

The respondents also evaluated three factors associated with their preparation for employment: academic preparation, competency and skills, and internship experience. The results are presented in Table 2.

Table 2. *Graduate Ratings of Factors Contributing to Job Readiness*

Job-readiness factor	Mean	Standard deviation
Academic preparation	4.36	0.74
Competency and skills	3.65	0.73
Internship experience	4.43	0.89
Overall mean	**4.15**	**-**

Note. Ratings were measured on a five-point scale, with higher values indicating stronger perceived contribution to job readiness. An overall standard deviation was not reported because respondent-level composite data were unavailable.

Internship experience received the highest mean rating at 4.43. This finding indicates that graduates regarded direct clinical exposure as the strongest contributor to their readiness for employment. Internship provides opportunities to perform laboratory procedures, work within actual healthcare systems, observe professional standards, and adjust to the pace and responsibilities of laboratory practice. It also enables students to apply theoretical knowledge under supervision and develop confidence before entering independent employment.

Academic preparation received a mean of 4.36, indicating that graduates generally considered their coursework and scientific preparation useful for professional transition. The result is consistent with the high rating given to the courses in the curriculum. Together, these findings suggest that the program provided a strong foundation in the knowledge required for Medical Technology practice.

Competency and skills received the lowest mean at 3.65. Although this score remained above the midpoint of the scale, the difference between this rating and the ratings for academic preparation and internship is analytically important. The result suggests that graduates were more confident in the adequacy of their academic and clinical preparation than in the full range of competencies required in employment.

The lower competency and skills rating may point to areas such as communication, teamwork, critical thinking, problem-solving, adaptability, leadership, managerial capacity, information technology, and use of emerging laboratory systems. These competencies are increasingly important because Medical Technology graduates work within multidisciplinary healthcare teams and must respond to automation, quality-management requirements, digital documentation, laboratory information systems, and evolving diagnostic technologies.

The overall mean of 4.15 indicates that graduates generally perceived the program as supportive of job readiness. The findings nevertheless show that readiness was not evaluated uniformly across all factors. Internship and academic preparation emerged as clear strengths, while competency and skills represented the principal area requiring further enhancement.

4.4 Discussion

The findings indicate that graduates generally regarded the Centro Escolar University Medical Technology program as relevant to their professional preparation. The high employment proportion and the concentration of employed respondents in clinical, hospital, and diagnostic laboratories suggest substantial alignment between the degree program and the occupational destinations of graduates. This pattern is consistent with tracer research showing that Medical Technology graduates commonly enter roles directly related to their academic specialization (Quinto & Posada, 2020).

The results should nevertheless be interpreted cautiously. The descriptive design does not establish that the program directly caused the graduates' employment outcomes. The study did not compare employed and unemployed graduates, examine the duration of job search, measure employer evaluations, or control for licensure, prior experience, postgraduate education, or labor-market conditions. The employment findings therefore provide evidence of occupational alignment within the participating sample rather than causal evidence of institutional impact.

Curriculum quality emerged as a major program strength. The high rating for courses in the curriculum suggests that respondents perceived the content of their academic program as appropriate to the knowledge requirements of professional practice. This supports the argument that coherent integration of foundational, preprofessional, and specialized courses contributes to graduate employability in health sciences education (Saong

et al., 2023). It also reinforces the need for continued curricular alignment with developments in automation, molecular diagnostics, informatics, and quality systems (Waheed et al., 2023).

The favorable assessment of instruction indicates that graduates generally recognized the contribution of faculty members to their preparation. However, the somewhat lower rating for instruction compared with curriculum may indicate that strong content must be accompanied by teaching strategies that strengthen application, interpretation, and decision-making. Faculty development may therefore focus on case-based learning, laboratory problem-solving, technology-supported instruction, and authentic assessment.

The teaching and learning environment received the lowest rating among the program-quality dimensions. Although the score remained favorable, its relative position suggests that infrastructure, equipment access, instructional resources, laboratory conditions, student support, and technology integration should be reviewed. Pearse and Scott (2023) observed that disruptions to laboratory education highlighted both the usefulness of flexible digital learning and the continuing necessity of hands-on clinical experience. For cohorts affected by remote or blended instruction, limitations in physical laboratory access may have influenced perceptions of the learning environment.

Internship was consistently rated as a major strength. It ranked second among the program-quality dimensions and first among the factors contributing to job readiness. This convergence strengthens the conclusion that clinical training was central to the respondents' perceived preparation for employment. Bawica (2021) similarly emphasized that internship allows students to apply academic knowledge to workplace tasks and expectations. Sharma et al. (2022) also found that graduates valued well-organized clinical practicum experiences while identifying the need for clear evaluation criteria, sufficient duration, and preparation for broader laboratory responsibilities.

The relatively high variability in internship ratings suggests that internship quality may not have been uniform. Program administrators may therefore need to examine the consistency of clinical affiliations, supervision practices, student rotation schedules, exposure to laboratory sections, competency assessment, and feedback mechanisms. A favorable average rating should not obscure the possibility that some graduates encountered weaker or less comprehensive training experiences.

The most important developmental concern is the comparatively lower rating for competency and skills. This result aligns with Valdez's (2010) observation that Medical Technology graduates may rate laboratory and professional-responsibility competencies more highly than communication, teamwork, problem-solving, and other transferable skills. The finding also supports the broader view that job readiness is multidimensional and cannot be reduced to technical knowledge or procedural proficiency.

The difference between the ratings for academic preparation and competency development suggests a possible theory-application gap. Graduates may understand scientific concepts and laboratory procedures but feel less prepared to communicate results, respond to unusual situations, collaborate with other professionals, manage laboratory resources, or adapt to technological changes. This issue is particularly relevant as laboratories increasingly use automation, molecular platforms, information systems, and quality-management frameworks (Waheed et al., 2023).

The findings therefore support a balanced approach to program improvement. The university should preserve the curricular and internship components that graduates identified as strong while strengthening the teaching and assessment of transferable, managerial, digital, and adaptive competencies. These competencies should not be treated as separate additions to the curriculum. They should be embedded across laboratory courses, case analyses, simulations, research activities, group tasks, clinical rotations, and competency-based assessments.

The study contributes institution-specific evidence regarding how graduates perceive the program's quality and contribution to job readiness. Its findings are particularly useful for internal curriculum review, faculty development, internship management, and quality assurance. However, the dominance of recent graduates, the use of convenience sampling, and reliance on self-reported perceptions limit generalization. Future evaluations should include employers, clinical supervisors, faculty members, and objective performance indicators to provide a more comprehensive assessment of graduate readiness.

5. Conclusions, Recommendations, and Implications

5.1 Conclusions

The study assessed the perceptions of 247 graduates from the 2015-2024 cohorts of the Centro Escolar University Bachelor of Science in Medical Technology program. The findings indicate that the participating graduates generally viewed the program favorably and considered it supportive of their preparation for employment. Most respondents were employed, and the majority of those employed worked in clinical, hospital, or diagnostic laboratory settings, suggesting substantial alignment between their degree and occupational placement.

Graduates rated the overall quality of the Medical Technology program positively. The courses in the curriculum received the highest rating among the program-quality dimensions, indicating that respondents generally regarded the curricular content as relevant to professional practice. The overall internship experience was also rated highly, confirming its importance in connecting academic learning with actual laboratory work. Quality of instruction and the teaching and learning environment likewise received favorable assessments, although the latter obtained the lowest rating among the four dimensions and therefore represents a relative area for further review.

Among the factors associated with job readiness, internship experience received the highest rating, followed by academic preparation. These results indicate that graduates perceived both clinical exposure and formal academic preparation as major contributors to their transition into professional employment. Competency and skills received the lowest rating among the three job-readiness factors. Although the rating remained favorable, the result suggests that some graduates perceived comparatively weaker preparation in the broader competencies required in the workplace.

Overall, the findings show that the program's principal strengths lie in its curriculum and internship components. The main developmental concern involves the strengthening of competencies and skills that extend beyond technical laboratory knowledge, including communication, teamwork, critical thinking, problem-solving, adaptability, leadership, digital competence, and laboratory management.

The findings should not be interpreted as evidence that the program directly caused employment outcomes. The study used convenience sampling, descriptive statistics, and self-reported graduate assessments. Its conclusions therefore apply to the perceptions and employment characteristics of the participating graduates rather than to all graduates of the program or to objective workplace performance.

5.2 Recommendations

1. The School of Medical Technology should sustain periodic curriculum review to ensure continued alignment with current laboratory practice, professional standards, licensure requirements, and technological developments. Curriculum review should include stronger integration of molecular diagnostics, automation, laboratory information systems, data interpretation, quality management, biosafety, and emerging digital applications in laboratory practice.
2. The program should preserve and further strengthen the clinical internship component, which graduates identified as the strongest contributor to job readiness. Greater consistency should be established across clinical affiliation sites through common competency standards, rotation requirements, assessment criteria, supervision protocols, and feedback mechanisms. Regular evaluation of clinical partners may help identify differences in training quality and ensure that students receive comparable exposure to essential laboratory sections and professional responsibilities.
3. Faculty development should prioritize instructional approaches that integrate technical knowledge with practical decision-making. Case-based learning, simulation, problem-based laboratory exercises, authentic assessment, and interdisciplinary activities may be used to strengthen critical thinking, communication, teamwork, and problem-solving.
4. The teaching and learning environment should be reviewed in terms of laboratory facilities, equipment availability, digital resources, instructional technologies, student support, and access to contemporary laboratory systems. Particular attention should be given to areas in which graduates experienced limited exposure because of remote or blended learning arrangements.
5. Transferable and managerial competencies should be embedded across the curriculum rather than confined to a single course. Students should be given structured opportunities to develop communication, leadership,

teamwork, inventory management, quality assurance, documentation, conflict resolution, and professional adaptability.

6. The university should establish or strengthen an academic-industry advisory mechanism involving clinical laboratory managers, employers, alumni, faculty members, and professional organizations. Regular consultation may help identify emerging competency requirements and provide direct feedback on graduate performance.
7. Future tracer studies should use probability-based or stratified sampling whenever feasible to improve cohort representation. Samples should include sufficient numbers of graduates from earlier and more recent cohorts to permit meaningful comparison across graduation periods.
8. Subsequent research should incorporate employer evaluations, clinical supervisor assessments, licensure status, time to first employment, employment stability, job-role alignment, and objective competency indicators. A mixed-method design may provide deeper insight into why graduates perceive certain competencies as stronger or weaker.
9. The university should maintain a verified alumni database to support more accurate graduate tracking and reduce inconsistencies in demographic and employment records.

5.3 Implications of the Study

Educational Implications

The findings suggest that Medical Technology education should maintain a balance between scientific knowledge, technical laboratory preparation, clinical exposure, and transferable competencies. A strong curriculum and internship system may provide graduates with a solid professional foundation, but workplace readiness also requires the ability to communicate, collaborate, adapt, and make decisions under actual laboratory conditions.

Institutional Implications

For Centro Escolar University, the findings provide evidence that the curriculum and internship program are viewed as major institutional strengths. These components may therefore serve as focal points in quality assurance, accreditation, and program-development initiatives. At the same time, the relatively lower ratings for competency and skills and the teaching and learning environment indicate specific areas that should be monitored through continuous improvement mechanisms.

Practical Implications

The results emphasize the importance of closer coordination between the university and clinical training institutions. Standardized internship expectations, regular feedback from supervisors, and systematic monitoring of student exposure may improve the consistency of clinical preparation. Employers may also benefit from stronger collaboration with the university in identifying entry-level competency requirements.

Methodological Implications

The study demonstrates the usefulness of graduate perception surveys in institutional program evaluation but also reveals their limitations. Self-reported ratings cannot independently establish actual workplace competence or causal program effectiveness. Future evaluations should therefore combine graduate perceptions with employer feedback, objective performance measures, and more representative sampling procedures.

Policy Implications

At the program and institutional levels, the findings support policies that require regular curriculum review, structured internship evaluation, competency-based assessment, alumni tracking, and stakeholder consultation. Such policies may help ensure that Medical Technology education remains responsive to technological change, healthcare workforce needs, and evolving professional standards.

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