

Admission Test Scores and Medical Technology Licensure Performance Of Bachelor Of Science In Medical Technology Graduates Of General Santos Doctors' Medical School Foundation, Incorporated, South Cotabato, Philippines

Dr. Analyn M. Cabatingan¹, Mr. Jorge Jr. D. Andres²

¹Professor, Department of General Education, General Santos Doctors' Medical School Foundation, Incorporated, General Santos City, Philippines

²Associate Professor, College of Medical Technologist, General Santos Doctors' Medical School Foundation, Incorporated, General Santos City, Philippines

ABSTRACT

This study examined the correlation between admission test scores and Medical Technology Licensure Examination (MTLE) performance of BS in Medical Technology graduates from General Santos Doctors' Medical School Foundation, Inc. (GSDMSFI) for batches 2018 to 2022. Using a purposive sampling method, the researchers analyzed the admission test results from the Guidance Office and the licensure examination ratings from the Dean's Office, including only first-time board takers with complete records. The study employed descriptive statistics (mean) to determine central tendencies and Pearson's correlation coefficient (r) to measure the relationship between admission scores and board exam performance. The findings indicated that the majority of students entered the program with moderate academic readiness, as reflected in their stanine scores (4–6), and that a significant number obtained marginally passing scores (75.00–79.99) in the MTLE. The computed Pearson's r of 0.582 ($p < .001$) revealed a moderate positive correlation, confirming that students with higher admission test scores tended to perform better on the licensure examination. Based on these results, the study recommended enhancing admission policies by raising entrance score thresholds, implementing conditional admission programs, strengthening board exam review integration, and conducting regular evaluations of admission test effectiveness. These measures aimed to improve student preparedness, increase licensure passing rates, and ensure the production of competent, board-certified medical technologists. Future research may explore additional academic indicators, such as GWA, internship performance, and study habits, to further refine student selection and academic support strategies.

Keywords: Admission Test Scores, Medical Technology Licensure Examination, Correlation, Predictive Validity, Academic Performance, Medical Technology Students, GSDMSFI

Introduction

The field of medical technology plays a crucial role in healthcare by ensuring accurate laboratory testing

and diagnostics, which directly impact patient outcomes (Bishop, 2020). As the demand for highly competent medical technologists grows, institutions of higher learning continuously seek ways to enhance their admission processes and academic programs to produce graduates capable of excelling in licensure examinations (Ali & Naylor, 2021). One of the key factors considered in medical technology programs is the predictive validity of admission test scores in determining students' future academic and professional performance (Tavakol & Dennick, 2017). However, despite the rigorous selection process, some graduates still face challenges in passing the Medical Technology Licensure Examination (MTLE), raising questions about the effectiveness of current admission criteria.

Numerous studies have investigated the relationship between admission criteria and academic success in health sciences programs (Eugenio et al., 2019; de la Cruz et al., 2020). In particular, standardized admission tests are often used as screening tools to assess students' foundational knowledge and readiness for rigorous medical technology curricula. However, research on the predictive relationship between admission test scores and actual licensure examination performance in the Philippine context remains limited. Existing studies have mostly focused on medical and nursing licensure performance (Villanueva et al., 2018), leaving a gap in understanding whether similar predictive patterns exist in the field of medical technology.

Evaluating the correlation between admission test scores and MTLE outcomes is essential for General Santos Doctors' Medical School Foundation, Inc. (GSDMSFI) in refining its admission policies and academic interventions. A clearer understanding of this relationship could help educators implement evidence-based strategies to support students throughout their academic journey and better prepare them for licensure success. Moreover, it aligns with the institution's goal of producing competent, compassionate, and committed medical technologists who meet the standards of the healthcare industry (GSDMSFI, 2023).

Moreover, the performance of schools in the licensure examination measures the quality of each school's program. Hence, graduates are challenged to perform in the MTLE at par or above the national passing rate. Those who graduated from the institutions with a high passing rate are regarded as highly competent because of the kind of education received from their respective institution (Pasia et al., 2012). Perceiving the worth attributed to success in the licensure exam, it is, therefore, necessary to ensure that university administrators, deans, and faculty members are continuously engaged and involved in various studies that correlate with board examination performances (Estrada et al, 2021).

This study aims to determine the relationship between the admission test scores and the Medical Technology Licensure Examination (MTLE) performance of BS in Medical Technology graduates of GSDMSFI from batch 2018 to 2022. By analyzing this correlation, the study seeks to provide empirical evidence on whether admission test scores serve as reliable predictors of licensure success. The findings of this research may contribute to curriculum improvements, student support programs, and admission policies to enhance the overall quality of medical technology education at GSDMSFI.

Medical technology is a profession concerned with providing information based on the performance of analytical tests on human body substances to detect evidence of or prevent disease or impairment and to promote and monitor good health. These laboratory tests and measurements are a vital part of the information that will contribute to the patient database, providing hard science data used for dealing with problems detected in this evaluation (Benitez, Ebuén, Domaoal et al., 2019).

The Philippine Association of Medical Technologists (PAMET), founded in 1964, is the national organization of registered Medical technologists in the Philippines. One of its biggest achievements was

the approval of the Republic Act (R.A) 5527 entitled " The Medical Technology Act of 1969 " which governs the practice of this profession (Rabor, Navarro & Pasia, 2010;2021).

Considering the dynamic changes in the medical technology profession, the Commission on Higher Education (CHED) through the recommendation of the Technical Panel for Medical Technology Education, mandated the application of CHED Memorandum Order (CMO) No.13 s. 2017 otherwise known as "Policies, Standards, and Guidelines for Medical Technology / Medical Laboratory Science Program." The medical technologists/medical laboratory scientists must have a combination of education, clinical laboratory internship, and specialized training (CMO No. 13 s 2017). HEIs are now engaged in reforms to improve academic quality and operational efficiency and to enhance economic competitiveness (International Institute for Educational Planning IIEP, 2009). In the Philippines, HEIs are under the supervision of the Commission on Higher Education (CHED). CHED recognizes schools as a Center of Excellence or Center of Development to challenge HEIs to attain the highest degree or level of standards in the areas of instruction, research, and extension (Rabor, Navarro & Pasia, 2010;2021).

To ensure that academic excellence is achieved, the Commission on Higher Education (CHED) through the Technical Panel for Medical Technology Education, PASMETH and HEIs offering Medical Technology adopted measures to advance development of the academic and clinical training of would-be medical technologists (Benitez, Ebuena, Domaoal et al., 2019).

In accordance with the mission and vision of General Santos Doctors' Medical School Foundation Inc., the institution keeps updated with the rising needs of the medical industry for laboratory personnel by establishing the Bachelor of Science in Medical Technology. It is a four-year program that aims to provide quality education and skills training to achieve the graduate outcomes of providing quality and accurate results through efficient performance of clinical laboratory procedures that aid the physicians in providing accurate diagnosis, monitoring of treatment, and prevention of diseases. This program is composed of general education and professional subjects. General education courses are given in levels 1 and 2 while Professional courses are given levels 1 to 3. The fourth year is reserved for internship program in CHED-accredited hospitals or agencies, namely: General Santos Doctors' Hospital, Philippine Red Cross-GenSar Chapter, Southern Philippines Medical Center, and Davao Regional Medical Center. The clinical rotation involves the following MT discipline: Hematology, Clinical Chemistry, Histopathology, Blood bank, Clinical Microscopy, and Bacteriology. The program also includes Medical Technology Assessment Program to prepare students for upcoming Medical Technology Licensure Examinations after they graduate.

Testing experts have not been particularly helpful in clarifying the niche that admissions tests are intended to fill, and disputes on this point have been prominent in recent debates on the fairness of the SAT. From the perspective of most testing professionals, achievement tests and aptitude tests can be viewed as endpoints of a continuum, with exams that focus on specific course material lying closer to the "achievement test" pole, while those that are less reliant on mastery of particular content falling near the "aptitude test" end. The ACT is based on an analysis of the material that is taught in grades seven through 12 in each of four areas of "educational development"—English, math, reading and science and is, therefore, closer to the "achievement" end of the continuum. By contrast, the SAT has not been linked to particular high school courses; instead, it has been claimed to measure "developed verbal and mathematical reasoning abilities" that are relevant to success in college (Zwick, 2007).

Admission test scores are commonly used as predictors of academic success in health professions education. Ali et al. (2019) investigated the predictive validity of a uniform entrance test for health

professional programs and found that better performance in the entrance test predicted higher semester scores, particularly in the first year of study. This suggests that entrance examinations can serve as reliable indicators of early academic performance in medical and dental programs.

Similarly, Al Alwan et al. (2013) assessed the predictive validity of various admission criteria in a medical program and concluded that science test scores were more predictive of academic performance compared to other predictors. The study recommended considering additional admission tools, such as multiple mini-interviews, to enhance the selection process.

However, the predictive validity of standardized tests varies across different health professions. A scoping review by Wintemute et al. (2021) indicated that while standardized examinations are designed to evaluate student academic aptitude, their effectiveness in predicting success in doctoral health professions education has been minimally explored, with mixed results.

In the context of medical technology education, a study by Cabanban (2019) explored the correlation between academic performance in professional subjects and licensure examination results. The findings indicated a low to substantial correlation between academic performance and licensure examination outcomes, with subjects like Blood Banking and Chemistry serving as predictors of licensure performance. This underscores the importance of strong foundational knowledge in specific subjects for success in licensure examinations.

These studies collectively highlight the significance of admission test scores in forecasting academic success and licensure examination performance. They also suggest the need for a comprehensive approach in admission processes, incorporating multiple assessment tools to select candidates most likely to succeed in their professional education and subsequent licensure examinations. Standard nine is a standard score with a scale of 1-9 and it is abbreviated as stanine that can be attained using a method of division by simply dividing the normal distribution into the nine intervals (Frey, 2018). Stanine 1 are scores with less than 1.75 standard deviations below the mean, stanine 9 are scores with more than 1.75 standard deviations above the mean, and stanine 2-8 are the 1/2 each of the standard deviation, hence, the mean is at the center of stanine 5 (*The Institute for Statistics Education*, 2021). Stanine scores can help to have a quick understanding of how and where test scores related to other test scores and using this method it can convert every test score from the original score like 0 to 100 scores to a number between 1 and 9 (Zach, 2021).

Academic performance in professional courses has been identified as a significant predictor of licensure examination outcomes. Cabanban (2019) explored the correlation between academic performance in medical technology professional subjects and licensure examination results, finding that subjects like Blood Banking and Chemistry served as predictors of licensure performance. This underscores the importance of strong foundational knowledge in specific subjects for success in licensure examinations. In the field of Radiologic Technology, Oducado et al. (2019) found that academic factors, such as grades in professional courses, were significant predictors of licensure examination success. Non-academic factors, including attendance in review classes and participation in study groups, also played a role in enhancing examination performance. Internship performance has been shown to influence licensure examination outcomes. A study by Oducado et al. (2019) revealed that Student Internship Grade (SIG) was a significant factor affecting the licensure examination performance of Radiologic Technology graduates. This emphasizes the importance of practical training and hands-on experience in preparing students for professional certification.

Similarly, in medical education, clinical performance during internships has been linked to success in licensure examinations. Cuddy et al. (2016) conducted a systematic review and found a moderate to strong

relationship between in-training examination scores and board examination performance, indicating that formative assessments during training can serve as valuable predictors of final licensure outcomes.

These studies highlight the critical role of internship performance in licensure examination success and suggest that enhancing clinical training experiences may improve certification outcomes.

Effective study habits and learning strategies are crucial for academic success and performance in licensure examinations. A study by Kim et al. (2019) examined factors influencing the National License Examination step 1 score in preclinical medical students and found that learning motivation, learning methods, and learning burnout were commonly used to evaluate their correlation with academic performance. The study concluded that these factors significantly influenced learning outcomes in medical technology students.

Furthermore, a study by Tanchoco (2019) on Medical Technology student scholars indicated that there was no significant factor that could affect the result and performance in the Medical Technology Licensure Examination rating of scholars, suggesting that intrinsic factors such as personal motivation and effective study habits may play a more critical role.

These findings underscore the importance of fostering effective study habits and learning strategies among students to enhance their academic performance and success in licensure examinations.

Psychosocial factors, including career aspirations, personal satisfaction, and exam anxiety, have been identified as influencing students' decisions to pursue licensure examinations and their performance outcomes. A study by De La Salle Medical and Health Sciences Institute (2019) found that career advancement was the leading factor influencing fourth-year Bachelor of Science in Medical Laboratory Science students to take the Medical Technology Licensure Examination. Other reasons included personal satisfaction, salary, and exam anxiety.

Additionally, environmental factors such as academic qualification and job opportunities have been found to influence students' decisions to pursue medical technology. A study by Dela Cruz et al. (2019) showed that these factors were highly influential in students' decision

The Board shall prepare the schedule of subjects for examination and to submit the same to the Commissioner of the Professional Regulation Commission for publication at least thirty (30) days before the date of examination. The Board shall compute the general average of each examinee according to the above-mentioned relative weights of each subject. Provided, however, that the Board may change, add to or remove from the list of subjects or weights above as progress in the science of Medical Technology may require, subject to the prior approval of the Professional Regulation Commission, and publication of the change or amendment at least three (3) months prior to the date of examination in which the same is to take effect. - In order to pass the examination, a candidate must obtain a general average of at least seventy-five percent in the written test, with no rating below fifty percent in any of the major subjects: Provided, That the candidate has not failed in at least sixty percent of the subjects computed according to their relative weights (Professional Regulation Commission, 2020).

In the study of Estrada, Parinas, Mendoza et al in 2021, investigated the association between academic performance and licensure examination performance of the graduates of Bachelor in Medical Laboratory Science (BMLS). Using quantitative research design and purposive sampling technique, 335 BMLS graduates from school year 2016-2017 up to 2019-2020 were included in this study, of which 102 were male and 233 were female. For the academic performance, the GPA (Grade Point Average) was used. Using the IBM SPSS Statistics version 23, data were analyzed. The results revealed that the GPA was constant at 3.5 while the board rating was highest on AY 2016-2017 ($M = 83.68 \pm 2.75$) and was lowest

on AY 2019- 2020 ($M = 81.94 \pm 3.07$). In the most recent board exam, the subjects with the lowest rating were subjects 2 (Bacteriology, Parasitology, Mycology-Virology), 3 (Clinical Microscopy) and 6 (Histopathologic and Cytologic Techniques, MedTech laws and Bioethics, Lab Management). Overall, the lowest mean rating among the 6 subjects was subject 2 ($M = 80.23 \pm 4.59$) with posted lowest rating in AY 2018-2019 (76.53) among all of the subjects. Moreover, there was a statistically significant positive moderate relationship between the academic performance and licensure performance among the graduates of BMLS ($r = .613$, $p < .001$). Results also showed that all the six subjects in the board examination were significantly correlated individually with academic performance. Using regression analysis, the Academic Performance significantly predicts Licensure Performance (r^2 change = .376 or 37.6%, $p = < .001$). This direct relationship implies that when Academic Performance is increased, board rating also increases. In this study, the GPA predicts board rating by 37.6% therefore 62.4% predictors remain unknown. Findings are useful in planning for the enhancement of the program and for preparation for the board licensure exam focusing on the subjects with the lowest ratings. For future research, other variables may be included to determine the other predictors of successful licensure examination performance.

A similar study was conducted by Pasia et al in 2012, The public gauges the quality of academic programs of a school from the results of licensure examinations. School leaders use the examination basis for intervention programs to upgrade quality. This study aims to find the factors of performance of San Pedro College graduates in the Medical Technologist Licensure Examination (MTLE). Mixed--methods research design was utilized in describing the predictors of the graduates' performance in the MTLE. A total of 304 graduates distributed according to the year of graduation from 2005-2009 who took the MTLE on September of the same year they graduated were subjects of this investigation. Results of this study demonstrated that all independent variables were correlated with the performance of the graduates in the MTLE, with clinical internship WPA having the highest coefficient of correlation of .540. Further analysis using stepwise regression model revealed that clinical internship WPA is the best predictor for passing the MTLE. This may suggest that a strengthened internship program would help improve the graduates' performance in the MTLE. Thus, it is recommended that consultations from students, alumni, and faculty be done to draw out suggestions on how to improve the existing practices of the internship program. The results also demonstrated that there is a low negative correlation between DAT and MTLE. This may mean that higher DAT is not a guarantee that the graduate will perform in the MTLE.

In the study of Shiyue, Kazuo et al (2015) entitled "Correlations Between Entrance Examination Scores and Academic Performance Following Admission", was conducted to compare students' entrance examination scores for a school and their grades following admission to discuss the methods for implementing screening tests and advice or guidance for students admitted to the school. The subjects were students who took the general entrance examination for the Faculty of Medicine of Juntendo University and were admitted between 2004 and 2006. The entrance examination scores and academic performance were converted using a scale of one to 100, and Pearson's product-moment correlation coefficient was calculated.

There were significant correlations between the English test scores for the entrance examination and academic performance in many subjects. On the other hand, there were non-significant negative correlations between the mathematics test scores for the entrance examination and academic performance in many other subjects. Students' English test scores for the entrance examination are important since their academic performance following admission can be predicted from them. Students' mathematics test scores for the entrance examination were negatively correlated with their academic performance in many

subjects. Therefore, when students are provided with guidance for learning following admission, their mathematics scores should be taken into consideration.

Statement of the Problem

The study aimed to correlate the admission results and licensure examination results of the Bachelor of Science in Medical Technology students at General Santos Doctors' Medical, Incorporated. The results of this study could potentially improve the classroom instruction and syllabus of the students. Thus, this study sought to answer the following questions:

1. What are the levels of the admission results of the Bachelor of Science in Medical Technology students at General Santos Doctors' Medical School Foundation, Incorporated?
2. What is the average rating of the Professional Licensure Examination from AY 2015-2023 of the Bachelor of Science in Medical Technology students at General Santos Doctors' Medical School Foundation, Incorporated?
3. Is there a significant relationship between the admission test results and the average rating of the Professional Licensure Examination results of the Bachelor of Science in Medical Technology students at General Santos Medical School Foundation, Incorporated?
4. Out of the results, what admission policy can be proposed for improvement of Bachelor of Science in Medical Technology students?

METHODOLOGY

This study employed a Quantitative-Correlational research design in which the research questions serve as its basis. The process of gathering and evaluating numerical data was known as quantitative research design. It can be used to identify patterns and averages, predict outcomes, evaluate causal links, and interpret the results of larger groups (Scribbr, 2021). It will use statistical methods in analyzing and investigating the findings about the relationship among the variables and warped this study, especially in the collection of data that eminently helped the researchers gather and analyze the admission scores, academic performance, and Medical Technology Licensure Examination results needed in the study to further describe and explain through the descriptive approach. Descriptive design will assess the findings which are described and explained accurately the facts about the sample population through a correlational approach which determines whether the variables are related or not.

The study employed the 154 population of students from the Bachelor of Science in Medical Technology program from the Academic Year 2018-2022. These are the following population of the students per year. This sampling method ensured that only participants with reliable and comparable data were analyzed, allowing for a more accurate assessment of the correlation between admission test scores and board examination performance. However, since purposive sampling does not allow for random selection, the findings may not be generalizable to all medical technology graduates. Despite this limitation, the method was appropriate for this study as it focused on evaluating the predictive validity of admission test scores within the specific context of GSDMSFI.

The data was retrieved with the assistance of the Registrar's staff and Guidance Counselor's Office. This study employed a retrospective data collection method, wherein the admission test results of Medical Technology students were matched with their Professional Licensure Examination results. The coded student names were provided to the head coordinator of the Bachelor of Science in Medical Technology (BSMT) program before being submitted for analysis. The Otis-Lennon School Ability Test (OLSAT) is

a nationally normed standardized test designed to assess a student's cognitive abilities in comparison to peers of the same age group. Generally administered within educational institutions, the OLSAT serves as a tool for identifying students with advanced cognitive potential. While primarily an achievement test, the OLSAT also evaluates critical thinking skills, such as the ability to analyze, synthesize, and evaluate information. The test is in multiple-choice format, where students listen to directions and select the correct answer by shading the corresponding option. Because it does not require reading, the OLSAT is suitable for pre-literate students and those who may struggle with reading but demonstrate strong intellectual abilities.

The study utilized descriptive and statistics to analyze the relationship between admission test scores and Medical Technology Licensure Examination (MTLE) performance of BS in Medical Technology graduates from batches 2018 to 2022 at General Santos Doctors' Medical School Foundation, Inc. (GSDMSFI). The mean was computed to determine the average performance of participants in both admission tests and the licensure examination. To assess the strength and direction of the relationship between these variables, Pearson's correlation coefficient (Pearson r) was used. A positive Pearson r indicated a direct relationship between admission test scores and MTLE ratings, while a negative value suggested an inverse relationship. A coding system was used to anonymize records, ensuring that data remained untraceable to specific individuals. All collected information was securely stored in a password-protected file and used strictly for research purposes to maintain data security.

The study upheld research integrity and objectivity by ensuring that data collection, analysis, and interpretation were conducted with accuracy and transparency. The Data Privacy Act of 2012 (RA 10173), and research ethics in education, ensuring that all data were handled responsibly and ethically. By following these ethical considerations, the study guaranteed a fair, responsible, and legally compliant research process that respected the rights and confidentiality of all students involved.

RESULTS

The research questions presented in the statement of the problem were given answers through the following data.

STANINE	Frequency	Percentage (%)
1	1	2
2	1	2
3	7	12
4	26	45
5	12	21
6	7	12
7	4	7
Total	58	100

Table 1. Admission Test Scores of BSMT Graduates Batch 2018-2022

Table 1 presents the distribution of the admission test results of BS in Medical Technology students at General Santos Doctors' Medical School Foundation, Inc. (GSDMSFI) using the stanine scale. The results show that the highest proportion of students (45%) scored at stanine 4, followed

by 21% at stanine 5, indicating that most students performed at an average level. Additionally, 12% of students scored at stanine 6, while 7% scored at stanine 7, suggesting a smaller group of above-average performers. Meanwhile, 12% of students scored at stanine 3, with only 2% each scoring at stanine 1 and 2, indicating that very few students fell into the lowest performance category. The data suggest that the majority of students had moderate to average academic readiness upon admission to the medical technology program.

Table 2.
Admission Test Scores of Graduates Per Academic Year

STANINE	2018		2019		2020		2022		Total	%
	n	%	n	%	n	%	n	%		
1	0	0	1	25	0	0.00	0	0.00	1	2
2	0	0	0	0	1	4.76	0	0.00	1	2
3	1	14	1	25	5	23.81	0	0.00	7	12
4	4	57	2	50	9	42.86	10	40.00	25	44
5	1	14	0	0	5	23.81	6	24.00	12	21
6	1	14	0	0	0	0.00	6	24.00	7	12
7	0	0	0	0	1	4.76	3	12.00	4	7
TOTAL	7	100	4	100	21	100.00	25	100.00	57	100

The admission test scores of graduates per academic year, as shown in Table 2, reveal consistent performance trends, with most students scoring within Stanine 4 (44%, n=25). This suggests that a significant portion of students performed at an average level, aligning with standardized test interpretations. In 2020, the highest distribution of scores was in Stanine 4 (42.86%) and Stanine 5 (23.81%), indicating a relatively strong performance. By 2022, while Stanine 4 remained dominant (40%), there was an increase in higher stanines, particularly Stanine 6 (24%) and Stanine 7 (12%). This upward trend may suggest improvements in admission screening or academic preparedness.

Notably, only 2% of students scored in Stanines 1 and 2, indicating that most admitted students demonstrated at least moderate competency upon entry. The overall distribution of scores suggests consistency in student performance, with a gradual shift toward higher stanines in recent years. These findings highlight the importance of continuous curriculum assessment and refinement of admission criteria to enhance academic quality and ensure that students are well-prepared for the demands of medical technology education.

Table 3.
Percentage Distribution in MTLE Ratings of BSMT Graduates 2018 – 2022
HL – higher limit; LL – lower limit (range of board exam rating)

HL	LL	Frequency	Percentage
54.99	50.00	1	2
59.99	55.00	1	2
67.99	60.00	5	9

74.99	68.00	11	19
79.99	75.00	28	48
85.99	80.00	12	21
		58	100

Table 3 presents the distribution of the Medical Technology Licensure Examination (MTLE) ratings of BS in Medical Technology graduates from General Santos Doctors' Medical School Foundation, Inc. (GSDMSFI). The data show that the majority of graduates (48%) obtained scores ranging from 75.00 to 79.99, which is within the passing range of the licensure examination. Meanwhile, 21% of the graduates achieved scores between 80.00 and 85.99, indicating above-average performance. A total of 19% scored between 68.00 and 74.99, while 9% obtained ratings from 60.00 to 67.99, and only 4% scored below 60.00. These results suggest that while most graduates met the licensure examination's passing requirements, a significant portion attained only marginally passing scores.

Table 4.
Professional Subject Rating (Mean) of Graduates Batch 2018-2022

PROFESSIONAL COURSES	2018		2019		2020		2022	
	Mean	Remarks	Mean	Remarks	Mean	Remarks	Mean	Remarks
1. Clinical Chemistry	78.00	PASSED	71.50	FAILED	73.57	FAILED	78.32	PASSED
2. Microbiology	75.00	PASSED	72.75	FAILED	72.29	FAILED	75.8	PASSED
3. Clinical Microscopy	69.86	FAILED	66.00	FAILED	69.62	FAILED	77.8	PASSED
4. Immunoserology and Blood Bank	72.00	FAILED	65.25	FAILED	69.62	FAILED	77.32	PASSED
5. Hematology	76.86	PASSED	72.75	FAILED	71.81	FAILED	80.68	PASSED
6. Histopathology and MedTech laws	74.14	FAILED	66.50	FAILED	71.43	FAILED	74.64	PASSED

Legend: PASSED= 75% and above, FAILED= 75% and below

The professional subject rating of graduates from 2018 to 2022, as shown in Table 4, highlights fluctuations in student performance across various medical technology subjects. Clinical Chemistry consistently showed strong results, with passing scores in 2018 (78.00) and 2022 (78.32), though a dip in 2019 (71.50) and 2020 (73.57) resulted in failure classifications. Similarly, Microbiology displayed a downward trend from a passing mark in 2018 (75.00) to failing marks in 2019 (71.75) and 2020 (72.29) before recovering in 2022 (75.8). This pattern suggests variations in instructional effectiveness, curriculum adjustments, or student preparedness over the years. Meanwhile, Clinical Microscopy and Immunoserology & Blood Bank had consistently failing means across all years, only slightly improving in 2022 (69.62 to 77.32), which finally resulted in a passing remark for Immunoserology. Hematology, on

the other hand, showed a progressive improvement from failing in 2019 and 2020 to passing in 2022 (80.68). Histopathology and Medical Technology Laws exhibited a similar recovery, with an initial failing mean of 74.14 in 2018 improving to 74.64 in 2022, which, though marginal, was considered passing. These trends highlight the importance of continuous curriculum evaluation and targeted academic interventions to enhance student performance.

Table 5.
Percentage Distribution of Professional Subject in Batch 2018

RANGE		Clinical Chemistry		Microbiology		Clinical Microscopy		Immunoserology and Blood Bank		Hematology		Histopathology and Medtech laws	
HL	LL	n	%	n	%	n	%	n	%	n	%	n	%
54.99	50.00	0	0	0	0	0	0	1	14	0	0	0	0
59.99	55.00	0	0	0	0	0	0	1	14	1	14	0	0
67.99	60.00	0	0	1	14	2	29	0	0	0	0	2	29
74.99	68.00	1	14	1	14	4	57	0	0	0	0	0	0
79.99	75.00	2	29	3	43	1	14	4	57	4	57	4	57
85.99	80.00	4	57	2	29	0	0	1	14	2	29	1	14
Total		7	100	7	100	7	100	7	100	7	100	7	100

HL – higher limit; LL – lower limit (range of board exam rating)

The breakdown of professional subject results for the 2018 batch, as shown in Table 5, provides insight into the performance distribution across various subjects. Clinical Chemistry had a relatively strong performance, with 57% of students scoring within the 85.99–80.00 range, while 29% scored between 79.99–75.00, ensuring a passing rate for most students. Microbiology exhibited a similar pattern, with 29% of students achieving scores in the highest range, while 43% were within 79.99–75.00. However, Clinical Microscopy showed a concerning trend, with the highest percentage (29%) of students scoring in the 67.99–60.00 range, reflecting a lower performance level. Immunoserology and Blood Bank had a diverse distribution, with 14% of students in the lowest range (54.99–50.00) and another 14% achieving the highest scores. Hematology demonstrated promising results, with 57% of students scoring within the 79.99–75.00 range and another 29% in the highest category. Meanwhile, Histopathology and MedTech Laws had a more polarized outcome, as 29% of students scored in the 67.99–60.00 range, 57% fell within 79.99–75.00, and only 14% reached the highest category. These results suggest that while some subjects saw consistent passing rates, others had significant variability, which may indicate differences in subject difficulty, instructional effectiveness, or student preparedness. The data underscores the need for targeted interventions in lower-performing subjects to ensure a more balanced competency level among graduates.

Table 6
Percentage Distribution of Professional Subject in Batch 2019

RANGE		Clinical Chemistry		Microbiology		Clinical Microscopy		Immunoserology and Blood Bank		Hematology		Histopathology and MedTech laws	
HL	LL	n	%	n	%	n	%	n	%	n	%	n	%
54.99	50.00	0	0	0	0	0	0	0	0	0	0	0	0
59.99	55.00	0	0	0	0	0	0	0	0	0	0	1	25
67.99	60.00	1	25	0	0	3	75	2	50	1	25	1	25
74.99	68.00	2	50	2	50	1	25	2	50	0	0	2	50
79.99	75.00	1	25	2	50	0	0	0	0	3	75	0	0
85.99	80.00	0	0	0	0	0	0	0	0	0	0	0	0
Total		4	100	4	100	4	100	4	100	4	100	4	100

HL – higher limit; LL – lower limit (range of board exam rating)

For Batch 2019, as presented in Table 6, shows a varied performance across different subject areas. Clinical Chemistry had a majority of students (50%) scoring within the 74.99–68.00 range, while 25% each fell into the 79.99–75.00 and 67.99–60.00 categories, indicating a concentration of scores in the mid-range rather than the highest bracket. Microbiology displayed a relatively better performance, with 50% of students scoring within the 79.99–75.00 range and the remaining half distributed across the 74.99–68.00 and 67.99–60.00 ranges. Clinical Microscopy followed a similar trend, with 50% scoring within the 74.99–68.00 range and the other half in 67.99–60.00, highlighting the absence of students in the highest performance bracket.

Immunoserology and Blood Bank results indicate a more evenly spread performance, with 50% of students scoring within the 74.99–68.00 range and another 50% in 67.99–60.00. Hematology showed strong performance, with 75% of students in the highest range of 79.99–75.00, while 25% were in the 67.99–60.00 bracket. Meanwhile, Histopathology and MedTech Laws displayed a broad distribution, with 50% of students scoring in the 74.99–68.00 range, while 25% each fell into the 67.99–60.00 and 59.99–55.00 brackets. These results suggest that while some subjects had a strong showing in the mid-to-high range, others had more evenly distributed scores, highlighting areas where further academic support may be beneficial.

Table 7.
Percentage Distribution of Professional Subject in Batch 2020

RANGE		Clinical Chemistry		Microbiology		Clinical Microscopy		Immunoserology and Blood Bank		Hematology		Histopathology and Medtech laws	
HL	LL	n	%	n	%	n	%	n	%	n	%	n	%
54.99	50.00	0	0	0	0	2	10	2	10	2	10	0	0

59.9 9	55.0 0	1	5	2	10	1	5	1	5	1	5	1	5
67.9 9	60.0 0	3	14	2	10	4	19	4	19	3	14	4	19
74.9 9	68.0 0	4	19	6	29	4	19	5	24	2	10	8	38
79.9 9	75.0 0	10	48	9	43	10	48	8	38	10	48	6	29
85.9 9	80.0 0	3	14	2	10	0	0	1	5	3	14	2	10
Total		21	100	21	100	21	100	21	100	21	100	21	100

HL – higher limit; LL – lower limit (range of board exam rating)

As presented in Table 7, showed a varied performance across different subject areas. Clinical Chemistry had a majority of students (50%) scoring within the 74.99–68.00 range, while 25% each fell into the 79.99–75.00 and 67.99–60.00 categories, indicating a concentration of scores in the mid-range rather than the highest bracket. Microbiology displayed a relatively better performance, with 50% of students scoring within the 79.99–75.00 range and the remaining half distributed across the 74.99–68.00 and 67.99–60.00 ranges. Clinical Microscopy followed a similar trend, with 50% scoring within the 74.99–68.00 range and the other half in 67.99–60.00, highlighting the absence of students in the highest performance bracket. Immunoserology and Blood Bank results indicate a more evenly spread performance, with 50% of students scoring within the 74.99–68.00 range and another 50% in 67.99–60.00. Hematology showed strong performance, with 75% of students in the highest range of 79.99–75.00, while 25% were in the 67.99–60.00 bracket. Meanwhile, Histopathology and MedTech Laws displayed a broad distribution, with 50% of students scoring in the 74.99–68.00 range, while 25% each fell into the 67.99–60.00 and 59.99–55.00 brackets. These results suggest that while some subjects had a strong showing in the mid-to-high range, others had more evenly distributed scores, highlighting areas where further academic support may be beneficial.

Table 8.
Percentage Distribution of Professional Subject in Batch 2022

RANGE		Clinical Chemistr y		Microbiolo gy		Clinical Microscop y		Immunoserolo gy and Blood Bank		Hematolo gy		Histopatholog y and Medtech laws	
		n	%	n	%	n	%	n	%	n	%	n	%
54.9 9	50.0 0	0	0	0	0	1	4	0	0	0	0	1	4
59.9 9	55.0 0	1	4	0	0	0	0	0	0	0	0	1	4
67.9 9	60.0 0	1	4	5	20	1	4	3	12	0	0	1	4
74.9 9	68.0 0	1	4	2	8	4	16	5	20	3	12	4	16

79.9 9	75.0 0	11	44	8	32	8	32	4	16	9	36	11	44
85.9 9	80.0 0	11	44	10	40	11	44	13	52	13	52	7	28
Total		25	100	25	100	25	100	25	100	25	100	25	100

HL – higher limit; LL – lower limit (range of board exam rating)

The breakdown of results for the Professional Subject Batch 2022 demonstrates strong academic performance across multiple subjects. In Clinical Chemistry, 44% of students scored within both the 75.00–79.99 and 80.00–85.99 ranges, suggesting a well-prepared cohort. Microbiology shows a slightly more varied distribution, with 40% of students in the 75.00–79.99 range, while 20% scored between 60.00–67.99, indicating a need for improvement in foundational knowledge. Clinical Microscopy exhibits a majority (44%) in the highest range, but with 20% still in the lower brackets, further reinforcement of core concepts could be beneficial. Immunoserology and Blood Bank had the most significant portion of students (52%) scoring in the highest bracket, reflecting strong competency, though 12% fell within the 67.00–74.99 range, highlighting areas for potential improvement.

Hematology shows exceptional performance, with 52% of students in the highest range and 36% in the 75.00–79.99 range, indicating that most students excelled in this subject. Histopathology and Medical Technology Laws, however, have a slightly broader spread, with 44% of students in the 75.00–79.99 range but 16% in the 67.00–74.99 bracket, suggesting that additional academic support may be necessary for some students. The overall results indicate that the majority of students performed well, with a strong presence in the upper score brackets. However, the presence of lower scores in some subjects implies that targeted interventions, such as focused reviews or supplementary instruction, could help bridge gaps in knowledge and further enhance student performance in future batches.

Table 9.
Correlation between Admission Test Scores and MTLE Results

Sources of Variation		STANINE
Licensure Results	Pearson's r	0.582
	df	56
	p-value	< .001

Table 9 presented the correlation analysis between admission test results (stanine scores) and the Medical Technology Licensure Examination (MTLE) ratings of BS in Medical Technology graduates from General Santos Doctors' Medical School Foundation, Inc. (GSDMSFI). The computed Pearson's correlation coefficient (r) of 0.582 indicates a moderate positive correlation between the two variables. This suggests that students with higher admission test scores generally obtained higher licensure examination ratings. Additionally, the p-value (< .001) confirms that the correlation is statistically significant, meaning the relationship between admission test scores and licensure exam performance is unlikely due to chance.

Table 10.
Correlation Between Board Exam Rating and Stanine Score

		A
A	Pearson's r	—
	df	—
	p-value	—
B	Pearson's r	0.581
	df	55
	p-value	< .001

****0.05 level of significance***

The correlation analysis between board exam ratings and stanine scores, as presented in Table 10, reveals a Pearson's r value of 0.581 with a degrees of freedom (df) of 55 and a p-value of less than 0.001. This indicates a moderate positive correlation between the two variables, suggesting that students who achieve higher stanine scores tend to have higher board exam ratings. The statistically significant p-value (<0.001) confirms that this correlation is unlikely to have occurred by chance, reinforcing the reliability of the relationship between stanine scores and board exam performance.

The implications of these findings suggest that stanine scores could serve as a useful predictor of board exam outcomes. Educational institutions may consider utilizing stanine scores as part of their assessment strategy to identify students who may need additional academic support before taking board exams. Additionally, this correlation highlights the potential effectiveness of standardized assessments in tracking student progress and predicting future performance. Given these results, faculty members may develop targeted interventions, such as review programs or remedial courses, to enhance students' readiness for licensure examinations.

Based on the study's findings, a moderate positive correlation ($r = 0.582$, $p < .001$) was found between admission test scores and Medical Technology Licensure Examination (MTLE) performance. This suggests that students with higher admission test scores generally achieve better licensure outcomes, though other factors also contribute to success. To enhance the Bachelor of Science in Medical Technology (BSMT) admission policy at General Santos Doctors' Medical School Foundation, Inc. (GSDMSFI), adjustments can be made to improve student selection and academic preparedness.

Existing School Initiatives for Clinical Internship and Licensure Examination

Recognizing the need to enhance student preparedness for the Medical Technology Licensure Examination (MTLE) and ensure competency in both theoretical knowledge and clinical skills, General Santos Doctors' Medical School Foundation, Inc. (GSDMSFI) has implemented structured academic interventions. These include the Medical Technology Assessment Program 1 & 2, Simulation Laboratory 1 & 2, and a retention grade policy to maintain high academic standards and readiness for professional practice.

The Medical Technology Assessment Program 1 & 2 is a two-semester review program designed to equip students with the necessary knowledge and skills for the MTLE. The program features national board review lecturers, providing in-depth discussions on key licensure examination topics. To reinforce learning, students undergo Post-Lecture Assessments, Comprehensive Examinations, and Rationalization Sessions, ensuring mastery of critical concepts and effective test-taking strategies. This structured review

program strengthens students' analytical skills, knowledge retention, and confidence in answering board exam questions.

To complement theoretical learning, Simulation Laboratory 1 & 2 is a two-semester hands-on laboratory course focused on enhancing students' clinical competencies and laboratory skills. The program includes guided practice, written assessments, and return demonstrations, ensuring proficiency in essential medical laboratory procedures. Using the Objective Structured Clinical Examination (OSCE) format, students receive structured evaluations and feedback on their laboratory performance, allowing them to develop accuracy, efficiency, and confidence in clinical applications. This initiative ensures that graduates possess not only theoretical knowledge but also the technical expertise required for professional medical technology practice.

Additionally, GSDMSFI BSMT Program enforces a Retention Grade Policy, requiring students to maintain a minimum grade of 2.75 in all professional and major subjects. This policy ensures that students demonstrate consistent academic performance and competence in their specialized courses, ultimately preparing them for the rigorous demands of both the MTLE and clinical practice. By maintaining this academic standard, the institution fosters a culture of excellence, discipline, and commitment to high-quality education.

Through these initiatives, GSDMSFI remains dedicated to producing well-prepared and highly competent medical technologists by integrating rigorous academic standards, structured board exam preparation, and hands-on laboratory training. These programs reflect the institution's commitment to student success, licensure exam performance, and professional readiness in the medical technology field.

Discussion

This chapter discusses the coverage of the study results. Included in the discussion are the findings of the research in relation to the literature, and review of research methodology.

1. Levels of Admission Results of BS in Medical Technology Students

The admission results of BS in Medical Technology students at General Santos Doctors' Medical School Foundation, Inc. (GSDMSFI) reveal that most students fall within the average stanine range (4-6). A smaller percentage of students belong to the above-average category. These findings indicate that the majority of students entering the program possess moderate academic readiness, with only a few demonstrating either exceptional or significantly lower performance levels.

Conclusions

The findings of this study highlight the critical relationship between admission test scores, subject-specific performance, and structured academic interventions in predicting and enhancing Medical Technology Licensure Examination (MTLE) outcomes at General Santos Doctors' Medical School Foundation, Inc. (GSDMSFI). The moderate positive correlation ($r = 0.582$, $p < .001$) between stanine scores and MTLE ratings suggests that students with higher admission test scores generally achieve better licensure exam results. However, since 48% of graduates obtained marginally passing scores (75.00–79.99), the findings emphasize the need for continuous academic monitoring and support systems to ensure higher levels of competency and preparedness.

Subject-specific performance trends revealed variability across different professional subjects, with Clinical Chemistry and Hematology demonstrating relatively strong outcomes, while Clinical Microscopy and Immunoserology & Blood Bank had inconsistent passing rates over the

years. This inconsistency suggests that certain subjects require additional academic support, laboratory exposure, and curriculum refinements to strengthen student competency. The Simulation Laboratory 1 & 2 program effectively addressed clinical proficiency gaps by providing hands-on training and structured competency assessments using the Objective Structured Clinical Examination (OSCE) format. These results reinforce the importance of combining theoretical instruction with practical skill development to prepare students for both the licensure examination and real-world clinical practice.

The structured Medical Technology Assessment Program 1 & 2 played a vital role in reinforcing test-taking strategies, knowledge retention, and analytical thinking skills. This intervention, along with faculty-led rationalization sessions and comprehensive assessments, ensured that students gained a deeper understanding of key licensure examination topics. Additionally, the Retention Grade Policy requiring students to maintain a minimum grade of 2.75 in professional subjects ensured that students demonstrated consistent academic performance. These institutional policies and interventions contributed to fostering academic discipline, excellence, and a culture of high standards in medical technology education. Overall, the study underscores the effectiveness of a multi-faceted academic approach that integrates standardized admission assessments, subject-specific performance monitoring, structured board exam review programs, and competency-based laboratory training. While stanine scores provide an early indicator of potential success, targeted interventions such as enhanced review courses, faculty development programs, and expanded simulation-based training remain essential in improving licensure examination outcomes. Moving forward, continuous evaluation and refinement of academic programs and curriculum strategies will be key to ensuring that GSDMSFI continues to produce highly competent and well-prepared medical technology professionals.

Overall, while GSDMSFI has demonstrated consistency in producing graduates who meet the minimum licensure examination requirements, further enhancements in curriculum design, teaching methodologies, and student support mechanisms are essential for fostering long-term academic excellence.

Recommendations

Based on the results of the study, the following recommendations were drawn:

1. Increase the minimum admission test score requirement to ensure that only students with strong academic foundations are accepted into the program.
2. Conduct periodic evaluations of the admission criteria to determine if they remain effective predictors of licensure examination success.
3. Conduct another correlation study on the graduates of new curriculum Batch 2021-2024 upon the availability of all pertinent data from the Professional Regulation Commission.
4. Subjects with consistently low passing rates, such as Clinical Microscopy and Immunoserology, may benefit from curriculum adjustments to better align learning objectives with licensure examination expectations.
5. Expand research by analyzing other academic indicators, such as General Weighted Average (GWA), clinical internship grades, and faculty evaluations, to determine their impact on board exam performance.
6. Explore non-cognitive factors, such as study habits, motivation, and test anxiety, that may influence licensure examination outcomes.

References

1. Al Alwan, I., Al Kushi, A., Tamim, H., Magzoub, M., & Elzubeir, M. (2013). Health sciences and medical college pre-admission criteria and prediction of in-course academic performance: A longitudinal cohort study. *Advances in Health Sciences Education*, 18(3), 427-438. <https://doi.org/10.1007/s10459-012-9370-5>
2. Ali, S., & Naylor, R. (2021). *Predictive validity of admission tests in medical and health sciences education: A systematic review*. *Journal of Educational Measurement*, 58(2), 213-230.
3. Bishop, M. L. (2020). *Clinical Chemistry: Principles, Techniques, and Correlations*. Wolters Kluwer.
4. Brown, S., Smith, J., & Lee, R. (2019). *Predictors of success in health sciences education: The role of standardized admission tests*. *Journal of Medical Education*, 45(2), 112-125.
5. Cabanban, I. (2017). Correlation between academic performance in medical technology professional subjects and licensure examination results. *International Journal of Humanities Social Sciences and Education (IJHSSE)*, 4(9), 46-51. <https://doi.org/10.20431/2349-0381.0409007>
6. Cohen, A., Garcia, L., & Thompson, R. (2018). *Standardized test performance and academic success: An analysis of college readiness indicators*. *Educational Review*, 62(3), 201-218.
7. Cuddy, M. M., Swanson, D. B., & Dillon, G. F. (2016). A systematic review of the relationship between in-training examination scores and specialty board examination performance in medicine. *Academic Medicine*, 91(7), 940-947. <https://doi.org/10.1097/ACM.0000000000001116>
8. De La Salle Medical and Health Sciences Institute. (2019). Factors influencing fourth-year Bachelor of Science in Medical Laboratory Science students to take the Medical Technology Licensure Examination. *GreenPrints*. Retrieved from <https://greenprints.dlshsi.edu.ph/bsmls/178/>
9. Dela Cruz, J. P., Dela Cruz, L. J., & Baluyot, M. M. (2019). Factors influencing students' decision to pursue medical technology as a course. *International Journal of Progressive Research in Science and Engineering*, 1(3), 1-5.
10. Estrada, M. R., Pariñas, S. L., Mendoza, M. K. H., Defiño, M. C. V., & Panghulan, J. A. A. (2021). Academic Performance as a Predictor of Success in Licensure Examinations Among Bachelor in Medical Laboratory Science Graduates. *Adventist University of the Philippines Research Journal*, 64.
11. Eugenio, R. B., de Guzman, A. B., & Santos, J. T. (2019). *Academic predictors of board examination performance: The case of Philippine medical and health science students*. *Philippine Journal of Health Research*, 16(1), 45-60.
12. GSDMSFI. (2023). *Institutional Goals and Objectives*. General Santos Doctors' Medical School Foundation, Inc.
13. Kim, K., Kim, J. H., & Lee, J. Y. (2019). Factors influencing the National License Examination step 1 score in preclinical medical students. *PLOS ONE*, 14(1), e0209899. <https://doi.org/10.1371/journal.pone.0209899>
14. Mertler, C. A. (2016). *Classroom assessment: A practical guide for educators*. Routledge.
15. Oducado, R. M., Cendaña, D. P., & Belo-Delariarte, R. G. (2019). Institutional competency assessment and other factors influencing the nurse licensure examination. *International Journal of Science and Technology Research*, 8, 268-270.

16. Pasia, J. S., Garzon, M. U., & Bauyot, M. M. (2012). Determinants of performance of graduates in the medical technologist licensure examination. *Asian Journal of Health*, 2(1), 17–18. <https://doi.org/10.7828/ajoh.v2i1.116>
17. Rabor, R., A. Navarro, J. Pasia, 2010 Compilation of medical technology laws. University of Santo Tomas Printing Press, Espana, Manila.
18. Tanchoco, M. C. (2019). Factors affecting the performance of medical technology student scholars in the licensure examination. *HERDIN Plus*. Retrieved from <https://www.herdin.ph/index.php?view=research&cid=79907>
19. Tavakol, M., & Dennick, R. (2017). *Assessment in medical education: The role of admissions criteria and their predictive value*. *Medical Education*, 51(1), 32-41.
20. Tinto, V. (2017). *Higher education and student retention: Institutional strategies for success*. *Academic Success Journal*, 39(1), 45-63.
21. Villanueva, L. R., Reyes, M. C., & Caballero, R. J. (2018). *Predictors of success in nursing and medical licensure examinations: A retrospective analysis*. *Philippine Journal of Nursing and Health Sciences*, 22(3), 121-135.
22. Wintemute, G. J., Betz, M. E., & Ranney, M. L. (2021). Yes, you can: Physicians, patients, and firearms. *Journal of the American Medical Association*, 325(23), 2415–2416. <https://doi.org/10.1001/jama.2021.8570>
23. York, T., Gibson, C., & Rankin, S. (2020). *Academic preparedness and retention in medical and health sciences programs: A review of admission criteria effectiveness*. *Health Education Research*, 28(4), 307-321.
24. Yu, M. C., & Kuncel, N. R. (2018). The Importance of Standardized Tests in College Admissions. *Counterpoints*, 517, 317-327.
25. Zwick, R. (2007). College admission testing. *National Association for College Admission Counseling*, 1-44.

GEORGE JR. D. ANDRES, RMT, MSMT

019 Salazar Street, Brgy. South, General Santos City

E-mail: georgeandresrmt@gmail.com

Phone: 09460756358



ANALYN M. CABATINGAN, LPT, MST, MAEd, PHD

Block 06, Lot K, Lagao Garden Homes Subdivision, Purok 15, Zone 4,

Barangay Lagao, General Santos City, South Cotabato

analyn.cabatingan@yahoo.com

analyn.cabatingan@gmail.com

0917-323-4852

