A Correlational Study between the Length of Internship and 2019 Medical Technology Board Examination Performance

Kyle Cydric F. Burac[1], Antonete Geana R. Cruz[1], Stefi B. Leonardo [1], Victor Felix J. Payo[1], Angelica V. Vallar[1], Queency Ann Gerin R. Villabroza[1], Miguel Carlos G. Arada[2]

[1]Student, Department of Medical Technology, Faculty of Pharmacy, University of Santo Tomas, Sampaloc, Manila, Philippines.

[2]Faculty, Department of Medical Technology, Faculty of Pharmacy, University of Santo Tomas, Sampaloc, Manila, Philippines.

Corresponding Author: mgarada@ust.edu.ph

Abstract: - Clinical internship established quality indicators that assess the medical technology board examination performance. The goal of improving board examination performance is to improve student outcomes through clinical internship. This study thereby aimed to determine the association between the length of internship and board exam performance of 2019 Medical Technologists Licensure Examination (MTLE) passers and discover their perspectives on the methods of preparation for the 2019 MTLE and adequacy of the length of internship. The study was exclusively conducted online using a validated questionnaire distributed to the respondents using the different social media platforms. Statistical analysis of data was performed using frequency, percentages, p-value, and Spearman's Rho. The study revealed that there is a significant correlation (P-value < 0.05) and very weak negative association (Rho = -0.19 to -0.01) between the two variables. Moreover, the majority who performed average and above in the 2019 MTLE came from the 6-month internship. The study also revealed that MTLE takers from both internship lengths considered clinical internship, use of their notes and books, and enrolling in face-to-face review centers as their methods in preparation for the MTLE. Moreover, the majority of the respondents considered their length of internship adequate to prepare them for the MTLE; however, few from the 6-month internship discerned that the length of their internship was not adequate enough in preparing them for the MTLE. Based on data gathered, the proponents were able to conclude that there is a significant, very weak negative association between the length of internship and the 2019 Medical Technology.

Key Words: — ***Internship, Medical technology, Board examination.***

I. INTRODUCTION

Medical technology (MT) is a rapidly growing profession (Lingo, 2017) brought about by the increasing demand for healthcare workers and the ever-shifting landscape of laboratory science and technology, public health, and healthcare in the Philippines. It is an auxiliary branch of medical science which involves the examination of biologic specimens through various laboratory tests and procedures so as to aid physicians in the diagnosis and treatment of disease, in medical research, in forensics, and in other related areas. As such, it is said to be the backbone of medical institutions despite being hidden in plain sight from public recognition (High Desert Medical College, 2017).

In the Philippines, those who practice the profession are referred to as medical technologists. The practice is regulated by the Professional Regulations Commission (PRC) which conducts a bi-annual licensure examination during the months of March and August or September. Only those who pass the exam can become registered as medical technologists (RMT). To be qualified for the exam, one must obtain a Bachelor of Science in Medical Technology (BSMT)/Bachelor of Science in Medical Laboratory Science (BSMLS)/Bachelor of Science in Public Health (BSPH) by passing a 4-year degree program in a college or university duly recognized by the Commission on Higher Education (CHED). This program consists of an internship in a training laboratory accredited by the Department of Health (DOH).

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The standards for the registration of medical technologists and defining the practice of medical technology are based on Republic Act No. 5527 or the "Philippine Medical Technology Act of 1969" (Congress of the Philippines, 1969). Throughout the years, the law had been amended by several legislations including R.A. 6138, P.D. 498, and P.D. 1534. Among the provisions which had changed from its initial enactment in 1969 is the length of the internship period. The Medical Technology Internship Training Program is set as a bridge essential to consolidate the theoretical knowledge and practical experiences the students obtained within their academic years (Bashawri et al., 2006) so as to become humane, competent, and globally competitive medical technologists who are committed to serving the community's health needs. It is the final preparation of students as they take their board examinations and become effective members of the healthcare teams. In the original enactment, the minimum requirement is a 12-month satisfactory internship in an accredited training laboratory. In 2006, CHED released a Memorandum Order (CMO 14 s. 2006) which lowered the minimum requirement to a 6-month internship.

Despite the mandate of the CHED to lower the minimum requirement of internship for medical technologists in 2006, several educational institutions in the country continued to opt for a 1-year clinical internship. Given that the completion of the internship is a pre-requisite for the Medical Technology Licensure Examination, the proponents of the study seek to determine whether there is a significant relationship between the length of internship and the outcome of the exam. Similarly, in a study conducted by Hill-Besinque et al. (2000), the academic performance as indicated by the grade point average, preparations for the licensure examination which involve taking refresher courses, and experience in the laboratory involving years and working hours of internship were considered determinants for success in the pharmacy licensure examination in the state of California.

An outcome which would indicate a 6-month internship as having a more significant effect on board performance will open discussion among educational institutions regarding the efficiency of a 1-year clinical internship. Such an outcome would suggest that a 6-month internship would be the most ideal in producing skilled and competent medical technologists in the shortest amount of time considering the growing demand for healthcare workers. On the other hand, results favoring a 1-year internship as having a more significant effect on board performance will justify a more recent Memorandum Order from CHED (CMO 13 s. 2017), which shifted back the minimum requirement for clinical internship to 1 year for all institutions offering medical technology courses.

With the lapses in the medical technology education in the country, the curriculum will remain ineffective without reform and an improved standardized system to provide all graduates with the same level of skill and competency. In this regard, the researchers conducted a correlational study between the length of internship and the 2019 Medical Technology Board Examination performance. The results of the study may be useful in improving and standardizing the curriculum for institutions offering courses for medical technology in the Philippines, and consequently, provide all graduates the necessary skills and knowledge to deliver services at par with global standards of modern healthcare.

A. Objectives of the Study

The group aims to analyze the correlation between the length of the internship program and the 2019 Medical Technology Board Exam performance of Philippine medical technology graduates who completed either a 1-year or a 6-month internship program. Both lengths of the internship program were considered in the study to allow the proponents to determine the effect of undergoing a longer or shorter internship program on the board examination performance of medical technology graduates in 2019. This study specifically aims:

- To compare the 2019 board exam performance of medical technology graduates who have completed either a 1-year or a 6-month internship program,
- To determine the association between the 2019 board exam performance of Philippine medical technology graduates based on board exam score and the length of internship they underwent,
- To discover the methods of board exam preparation that are most commonly considered by the 2019 medical technology board exam passers who have completed either a 1-year or a 6-month internship program, and
- To determine whether the 2019 medical technology board exam passers who have completed either a 1-year and a 6-month internship program consider their length of internship to be adequate enough in their preparation for the board exam.

B. Statement of the Problem

Finding the correlation between the length of the internship program and performance in the 2019 Medical Technology Board Examination is considered as the main problem of the study. Specifically:

- Is there a difference between the 2019 board exam performances of Philippine medical technology graduates who had a 1-year internship program compared with those who had a 6-month internship program?
- What is the degree of association between the length of internship program and the board exam performance of medical technology graduates in 2019?
- What methods of board exam preparation are most commonly considered by the 2019 medical technology board exam passers who have completed either a 1-year or a 6-month internship program?
- Do the 2019 medical technology board exam passers who have completed either a 1-year or a 6-month internship program consider their length of internship to be adequate enough in their preparation for the board exam?

C. Hypothesis of the Study

H_0: There is no association between the length of internship and the 2019 Medical Technology Board Exam performance.

H_1: There is an association between the length of internship and the 2019 Medical Technology Board Exam performance.

D. Scope and Limitations of the Study

This study only focuses on the performance of medical technology graduates who took the 2019 Medical Technologist Licensure Examination. The said performance is based on the respondents' resulting scores from the exam and the data gathered through online surveys using Google forms. The extent of the scope of this study may be referred from the listed objectives in Chapter 1.2 Objectives of the Study. The target population was taken from the 2019 medical technology licensure examination passers list of the PRC with the use of social media platforms like Facebook, and those individuals who qualify in the research study and were within the reach of the researchers through personal connections. This study was conducted during the second semester of the 3rd-year medical technology students in the school year 2020-2021.

The inclusion criteria for the study included (1) passers of the 2019 medical technology licensure examination, (2) graduating from an accredited college or university that offers undergraduate medical technology or medical laboratory science programs, (3) having completed either a 1-year or 6-month internship, without prejudice to age or gender. The sample site for data gathering was mostly through Facebook and through personal connections with individuals who meet the set inclusion criteria. Meanwhile, the exclusion criteria included (1) respondents who are unable to access the online surveys due to technical difficulties like slow internet connection, (2) respondents who can no longer remember their licensure examination rating and are in no way capable of accessing the data already, (3) board passers outside of the year 2019, and (4) board passers who are out of reach by the researchers.

Taking into account the feasibility of the study, the proponents had focused solely on the 2019 passers of the Medical Technologist Licensure Examination. A wider scope of the study encompassing the preceding years of MTLE would not have been a viable sample size given the limitations of the COVID-19 pandemic and the lack of available resources. Consequently, the years succeeding the 2019 MTLE was also not included in the sample size. The internship undergone by medical technology interns succeeding the 2019 MTLE had no longer conformed to the "normal" curriculum with the implementation of flexible learning strategies and online and modular learning. Lastly, the batch of medical technologists who took the MTLE in 2019 were part of the curriculum which adhered to the CMO 14 s. 2006 allowing for a 6-month internship as a requirement for the degree.

The environmental, intellectual, and dispositional factors of the respondents were not considered as determinants to the study. Further limitations included data privacy concerns and the inability of researchers to have control over the data entry; thus, there were risks for bias and dishonesty in the survey. Moreover, the lack of related literature that may have helped the researchers establish the relationship of the length of internship and board performance was included in the study's limitations. The possible underlying factors (i.e., difficulty of the varying exam questions) that may result from the differing

months the respondents took the licensure exam which is beyond the researchers' control, but may have affected the reliability of the data, was also included in the study's limitations. The willingness of each respondent in the event of data gathering also played an important role in the limitation of this study. Such limitations may have compromised and/or produced erroneous results thereby possibly further complicating this research, being excluded from the study.

In addition to the limitations was the fact that the researchers conducted the study in the middle of a pandemic thus greatly curtailing the use of different methods of collecting data like face-to-face interactions which would have made data gathering more satisfactory under normal circumstances. That being said, the pandemic has very much affected and limited the conduct of this research study. The insufficiency of resources and experience of the researchers being only novices in the research field, was also included in the limitations of the study. Such limitations brought difficulties to the researchers in gathering data relevant for the study.

E. Significance of the Study

In pursuit of this study, its outcomes and findings will be significant to the field of medical technology including persons and organizations involved in the practice, namely: medical technologists, institutions and government organizations involved in defining and regulating the profession.

To the specific community:

Results of this study will allow medical technology interns to discover and better understand the importance of undergoing a quality clinical internship program and its importance in sufficiently preparing for the board exam. This will allow them to equip themselves with the necessary skills and knowledge that will enable them to pass and perform adequately in the licensure examination.

To the general public:

In line with adequately equipping medical technology interns for the board examination, and eventually, for the profession, this study will be beneficial to the society in terms of producing proficiently-performing medical technologists in the field. Given the surging demand for services in the area of medical technology, it is important that the medical technologists are effectively trained to practice competence and proficiency in the service of the general public.

To the Medical Technology field:

The data gathered from this research and the corresponding analysis may aid in the improvement of the clinical internship program of medical technologists in the Philippines in terms of efficient preparation of interns for the board examination. Furthermore, findings of this research may add to the existing body of knowledge regarding the proper formulation of the clinical internship programs as well as the medical technology curriculum at large. This study may also serve as groundwork and basis for future research encompassing similar or related topics.

F. Definition of Terms

*Board examination***.** May be used interchangeably with the term Licensure examination; An exam for aspiring health professionals that screens and qualifies them to practice the duties and responsibilities of a medical technologist under the written standards of the Republic Act No. 5527 also called the Medical Technology Law. This term is also used to refer to the Medical Technology Licensure Examination (MTLE).

*Commission on Higher Education***.** The Commission on Higher Education (CHED) is a government agency in the Philippines and the one in charge to promote quality higher education as well as to ensure that those who may not afford it can still access higher education.

Continuing Professional Development. Continuing professional development (CPD) is a term used in which professionals continue to learn and develop their skills as well as their knowledge throughout their career and also for them to be able to practice safely and effectively.

Internship program. A program that is held in an accredited laboratory which provides coherent duties regarding the different sections in the laboratory.

*Medical technology***.** A 4-year degree program that equips students with essential skills as well as training in performing laboratory tests. Detecting, preventing, diagnosing, and treating various diseases are the skills utilized in testing. Synonymous

with the terms Clinical Laboratory Science and Medical Laboratory Science.

Medical technology intern. A medical technology intern is a student or a trainee, who is under practical training supervised by a licensed medical technologist.

*Professional Regulatory Commission***.** The Professional Regulatory Commission (PRC) is the one responsible for administering, implementing, and enforcing the regulatory laws as well as the policies of the country in line with the regulation and licensing of several professions under its jurisdiction.

II. Review Of Related Literature

A. Review of Related Literature

Developments in science and technology have been an important factor in the progress and development of human societies. These innovations have influenced many aspects of human life; in fact, it seems that the world we know today would not be the same without technology. It has become essential to various industries, especially that of manufacturing and production, electronics, education, and the many other facets of society. In the field of medicine and healthcare, it has been responsible for improving the quality of life for all individuals. Developing technologies have been used in healthcare to improve methods of diagnosing diseases, in performing complex surgeries, and improving patient care (Healthcare Business & Technology, 2011). The discoveries and innovations in healthcare will continue to improve the lives of people for the better.

Medical technology is a term which may refer to the different equipment, apparatus, procedures, techniques, and medicine which are used to improve healthcare delivery and prolong human lives. Similarly, Health Canada's Food and Drugs Act defines medical technology as devices, instruments, or apparatus which are used in the prevention, diagnosis, or treatment of disease and its underlying symptoms. Likewise, it is to aid in restoring and altering body parts and function so as to mitigate disease (Health Canada, n.d.). Moreover, the term has become synonymous with related fields of biotechnology, pharmaceuticals, and information technology (Healthcare Business & Technology, 2011). But regardless of the context in which the term is used, it has the same goal of improving general health and the quality of human life.

Medical technology is also considered a branch of medical science. Those who practice the profession are involved in the examination of biologic specimens which are run through various laboratory tests and procedures so as to aid physicians in the diagnosis and treatment of diseases as well as in medical research, forensics, and other related areas. Those who practice the profession are referred to as medical technologists (MT). Depending on the country, they may also be referred to as medical laboratory scientists (MLS) or clinical laboratory scientists (CLS) (University of Wisconsin, 2019). Nevertheless, they perform the same function of helping patients by conducting tests to monitor and diagnose disease, support physicians by providing timely and accurate results, and continuously improve healthcare systems to become efficient and sustainable (MedTech Europe, 2019).

Just with any healthcare profession, there are prerequisite skills that medical technologists should develop in order to handle the demands of work in the different sections of the laboratory (Better Team, 2019). Most often, patients do not see medical technologists. Nevertheless, they remain a vital part of the healthcare delivery system by providing accurate and precise laboratory results to be used by physicians to make a diagnosis and administer proper treatment (Barry University, 2020). Moreover, they perform a wide range of responsibilities including, but not limited to, performing pregnancy tests, monitoring drug therapy and performing anti-susceptibility drug testing, researching to understand complex diseases such as HIV, AIDS, and cancer, and operating complex laboratory instruments including microscopes, other apparatuses, and electronic equipment as well as their maintenance (The Kansas University Medical Center, 2020).

In the Philippines, medical technology education and the practice of the profession is based on Republic Act No. 5527 or the "Philippine Medical Technology Act of 1969" (Congress of the Philippines, 1969). In the said enactment, a person is deemed in practice of the profession when he or she is compensated for the professional service of aiding physicians in the study, diagnosis, and treatment of disease. The medical technologist is primarily involved in: the collection, preservation, and storage of specimens; examination of human body fluids, tissues through various chemical, microscopic, hematologic, histopathologic, serologic, immunologic, and

nuclear procedures and other laboratory techniques; preparation and standardization of the various chemicals and reagents to be used in the tests; ensuring quality control in the standards, tests, and procedures; and engaging in clinical research for continuing professional development. Similarly, R.A. 5527 defines medical technologists as individuals who practice the profession of medical technology under an accredited laboratory and an authorized licensed physician, both of which are duly recognized by the Department of Health (DOH). To become a medical technologist in the Philippines, one is required to take a 4-year degree program and obtain a Bachelor of Science in Medical Technology (BSMT) or a Bachelor of Science in Public Health (BSPH) in a college or university duly recognized by the Commission on Higher Education (CHED, 2006). In four years, the student is imbued with knowledge on subjects including clinical chemistry, hematology, blood banking, serology, microbiology, parasitology, clinical microscopy, histopathologic techniques, and medical technology laws (CHED, 2006). In addition, skills are also honed and developed through laboratory work and a clinical internship in the 4th year of the degree program. In the internship, the student is engaged in the different sections of the laboratory to experience the practice in a real-life setting (CHED, 2017). Through the application of skills and knowledge gained through the years of medical technology education, the curriculum aims to produce competent and professional medical technologists proficient in the field of work (Valdez, 2012).

In the initial enactment of R.A. 5527, the minimum requirement was a 1-year internship in an accredited training laboratory during the 4th year of the degree program. However in 2006, the Commission on Higher Education released a Memorandum Order (CMO 14 s. 2006) which lowered the minimum requirement to a 6-month internship in an accredited training laboratory during the 2nd semester of the 4th year of the degree program (Commission on Higher Education, 2006). The extent of the period of internship still falls under the discretion of the educational institutions offering the program who have received a certain level of accreditation. The Philippine Association of Colleges and Universities Commission on Accreditation (PACUCOA) is among the accrediting bodies which recognizes institutions who are standards for excellence and competency in providing educational programs or courses. It grants four levels of accreditation (Level I, Level II, Level III, Level IV). A Level I or II accreditation grants institutions the special privilege and authority to change the curriculum without CHED approval as they see fit (PACUCOA Accreditation, 2020).

The final pre-requisite to become a registered medical technologist (RMT) is to pass the Medical Technologist Licensure Examination (MTLE), conducted bi-annually by the Professional Regulatory Commission (PRC). Through the board exam, the PRC is able to regulate the practice of the medical technology profession in the country and ensure that those to be registered as medical technologists are competent and up to the standards of the commission (Cruz, 2019). Apart from regulating the practice, the board examination serves as a benchmark for recognizing colleges and universities who excel in providing quality education in the field of medical technology. Consequently, this helps aspiring undergraduates in choosing a college or university that will meet their standards and expectations for a particular program.

Throughout the years since its enactment, R.A. No. 5527 or the Philippine Medical Technology Act of 1969 has been amended by several legislations. Examples of these amendments include P.D. No. 498 in 1974, amending sections 2, 3, 4, 7, 8, 11, 13, 16, 17, 21, and 29, and P.D. 1534 in 1978, which further amended R.A. No. 5527 as amended by P.D. No. 498. Since then, there have been no revisions made to the law which regulates medical technology education and practice in the country. R.A. No. 5527, which had been last revised in 1978, has become obsolete and outdated considering the ever-changing landscape of healthcare and the developments in medical standards and procedure. In 2011, then Senator Edgardo Angara proposed Senate Bill No. 2722. To be referred to as the "Medical Technology Act of 2011" upon approval. The bill was proposed with the intent to develop and modernize the regulation and practice of medical technology in the country so as to cope with the changing demands and current trends of healthcare (Senate of the Philippines, 2011).

The bill will reform the Board of Medical Technology so as to require the head of the Board to be a qualified medical technologist. It will also establish a Technical Panel in Medical Technology Education under CHED, as well as provisions in Continuing Professional Development (CPD) and higher grade-salary for medical technologists. Also, it seeks to establish a separate examination and accreditation body for phlebotomists (Senate of the Philippines, 2011). However, to this day, the bill remains pending in the Senate.

Based on the total number of examinees for the medical technology licensure examination over the course of five years (Table no. 1), there is a rising trend in the interest for the profession (Professional Regulation Commission, 2020). There are more and more individuals aspiring to become medical technologists due to the increasing demand for healthcare workers and services (Dennon, 2020). As such, there is a need to revisit medical technology laws in the country to guarantee that the lapses in medical technology education and the curriculum are addressed to provide all graduates with the same level of skill and competency. Without reform and a standardized system of education and practice at par with the standards of modern healthcare, Filipino medical technologists will lag behind their contemporaries in the ever-growing competitive landscape of the profession. Similarly, these revisions must include provisions to ensure the rights of medical technologists in terms of compensation and benefits (Magsambol, 2020). Such is a must for healthcare workers who have always been in the frontline against health crises despite the lack of recognition.

Table 1. Total number of examinees for the MTLE from 2015-2019

Exam Year	Exam Month	No. of Passers	Total No. of Examinees
2015	March	1,419	1,942
	September	4,048	4,840
2016	March	2,046	2,596
	August	4,144	5,126
2017	February	2,378	3,126
	August	4,821	5,661
2018	March	2,648	3,644
	September	4,718	6,070
2019	March	2,801	4,092
	September	4,743	6,453

Internship Programs:

Preliminary practice or advancement in the field of interest has become a necessity in colleges and universities before actual completion of a degree – serving as a preparation before the college to career transition; hence, the internship programs (Beard and Morton, 1998). According to the University of Maryland Baltimore County (n.d.), internship is a professional learning experience that provides students meaningful and practical work related to their field of study thereby giving students the opportunity to see and explore the nature of their work and improve as they learn new skills.

Purposely, internship has been specifically designed to provide the students a 'real-world' experience that allows them to put into action all of their conceptual and/or theoretical learnings throughout their academic years (Bloom, 2018). Significantly, it enables them towards the acquisition of the following: (a) valuable work experience, (b) career path exploration, (c) edge in the job market, (d) refined skills, (e) financial compensation, (f) connections among the professionals in the field of interest, and (g) confidence (Fermont College, 2019).

The application of learnings gained inside the classroom and experiencing first-hand the actual job beyond concepts. Valuable work experience is one of the most important benefits of internship as interns are given the chance to see what it is to expect in their field and become familiar of the day-to-day duties in the job, thereby enhancing their knowledge and competence in their field as well as mastering transferable skills such as teamwork, communication, and proficiency in computer and other related technologies essential for the job. In addition, internship enables students to become acquainted in their chosen field, thereby guiding them in their decision-making as to whether to pursue or not to pursue the current career path they have in mind. Likewise, going through internship programs makes job hunters marketable and enables them to stand out to potential employers as they are by then familiar with the work (not at all naïve), and are thereby capable of appropriately handling their job and needing less training, which would then become an advantage for the employers. Also, during an internship, strengths and weaknesses will be pointed out through the feedback given by the supervisors and heads, thereby making way for awareness and opening rooms for improvement as well as further enhancement of strengths. Moreover, paid internships are normally not practiced in a lot of workplaces. However, if it does, aside from gaining valuable work experience, the intern's daily expenses throughout the course of internship can also be compensated. Furthermore, internships are more than just a requisite to get a grade or earn some credits. It provides opportunities to learn and become surrounded by professionals in their field. That said, having the opportunity to impress them ensures a connection which would become helpful later in securing a job at that workplace. Lastly, internship programs provide interns a safe environment where countless mistakes are anticipated. This opportunity to become familiar with the actual work performed in the chosen field increases the individual's trust in oneself, thus, consequently being able to perform the work better (Fermont College, 2019).

The medical technology internship program is a global academic enterprise that serves as the standard by which

schools gauge their performances. Its completion marks not only the students' competence and capacity to uphold initiative and teamwork, but it also includes the students' preparedness and capability in responding to the patients' needs (Commission on Higher Education, 2017).

In the Philippines, the internship program for medical technologists is equivalent to 28 units taken in the 4th year level of the course. It is an intensive theoretical and practical training in the different sections of clinical laboratory such as Hematology, Clinical Chemistry, Clinical Microscopy, Parasitology, Immunology, Serology, Immunohematology, Histopathology/ Cytology, Microbiology, and other emergent technologies (Commission on Higher Education, 2017).

The medical technology internship program is established mainly to enhance the knowledge, skills, and attitudes of future healthcare professionals in the field who are required to perform laboratory procedures with precision and accuracy in order to aid physicians in the diagnostic process. Additionally, it aims to mold students to become well-rounded and directed towards intelligent, ethical, and active participation in welfare activities; and develop critical thinking skills that allow for participation in research endeavors and in responding to the challenges in the profession. Significantly, the medical technology internship program brings forth competent and humane medical technologists who are globally competitive and committed to service – addressing patient needs locally and internationally (Commission on Higher Education, 2017).

Having said this, applicants for internships should have covered all prerequisite courses in the first 3 years of education to qualify. In addition to this, applicants must be subjected to physical and laboratory examinations such as urinalysis, fecalysis, complete blood count (CBC), drug tests (cannabinoids and methamphetamines), HbsAg, anti-HBs, sputum microscopy, and chest X-ray, and must present proof of vaccination against hepatitis B to qualify because otherwise, the applicants may endanger themselves as they embark on this program (Commission on Higher Education, 2017).

All training programs provided by schools offering internships must be aligned with the approved CHED updated rules on Medical Technology Internship Program (MTIP). Schools must (1) enter into a Memorandum of Agreement, (2) assign interns only to accredited training centers, and (3) pay the affiliation fees to training centers. Based on the CHED Memorandum on medical technology internship, colleges and universities shall carry out seminars that are applicable to medical technology education. The interns are required to render 32 hours per week of internship duties which shall be equivalent to 1,664 hours in one year. The breakdown of hours are summarized as follows:

Table 2. Breakdown of Hours for Internship Duties per Year

Clinical Rotation	Hours
Clinical Chemistry	300 hrs.
Clinical Microscopy & Parasitology	200 hrs.
Microbiology	250 hrs.
Hematology	300 hrs.
Blood Banking	200 hrs.
Histopathologic Technique & Cytology	100 hrs.
Immunology & Serology	220 hrs.
Laboratory Management	54 hrs.
Phlebotomy	40 hrs.
Total	**1,664 hrs.**

In a study conducted by Bashawri, et al. (2006), they were able to explore the attitudes of the King Faisal University medical laboratory technology graduates towards their internship training program. In this study, it was found that all of their 115 respondents strongly agreed on the importance and necessity of the internship training period. This further highlights the need to conduct studies regarding internship programs, specifically in the field of medical technology.

Board Examinations:

Board examinations are a set of tests that a future license holder must take in order to work in their respective fields (Macmillan Dictionary, N.D.). Moreover, it guarantees the community that a person is credible enough to perform one's profession (Baldoz, 2013). An attached agency of the DOLE, the Professional Regulations Commission (PRC) was mandated to supervise and regulate the professional sector, 46 professions were required to take the licensure examination (DOLE, 2013).

According to Baldoz (2013), each board is composed of professionals who have been practicing for a long period of time; in addition, they are distinguished by their colleagues. Furthermore, the board must ensure that the examination meets the technical, professional as well as legal standards; it should also protect the safety, health and welfare of the population through the evaluation of the candidate's capability (Hertz and Chinn, 2000.).

Moreover, one of the measures of a quality program is the individual's performance in the board examinations (Guinayen,

2016). According to the PRC, if the rate during the first attempt is significantly high, then it indicates an excellent program. In addition, as cited by Guinayen (2016), the performance of the graduates in the licensure examination is a common indicator of a quality education program. The licensing process is included in the last steps that an individual must face in order to obtain a license to practice (Guinayen, 2016).

Board examinations are offered by the government in order to regulate a specific profession (Association of Test Publishers, 2017). According to the Department of Labor and Employment (DOLE) (2013), there are specific professions which require a high-skilled, technically proficient, as well as ethically competent practitioner. In addition, in the report of Department of Labor and Employment (2013), professions that have the top-most responsibilities for the welfare of the public typically require board examination in order to practice.

As stated by Baldoz (2013), "an individual must be a Filipino citizen, at the age of at least 18-21 and must uphold a good moral character in order to take the licensure examination; he or she must also be a degree holder of a pertinent college, school or university recognized by the government; free from any offense that may cause imprisonment; and must comply with the qualifications as well as requirements set by the Professional Regulatory Law."

In addition, potential examinees must collate and prepare all essential documents to be submitted before they can take the board examination. These include the transcript of records together with a scanned picture as well as remarks which state "For Board Examination purposes only"; birth certificate obtained from the National Statistics Office (NSO), for married women a marriage certificate from NSO is required, four pieces of passport-size picture with the complete name of the examinee in white background; community tax certificate; and lastly, other requirements set out by the particular Professional Regulatory Board (DOLE, 2013).

The Medical Technology Board examination is included in one of the 43 annual board exams conducted by the Professional Regulatory Commission (PRC).

The said examination screens as well as qualifies aspiring medical technologists through the utilization of standards set forth in the Republic Act No. 5527 also known as the Medical Technology Law (Cruz, 2019).

According to Cantos, Dacer & Milan (1994), these are the subjects included in the medical technology licensure examination:

Table 3. Six Board Subjects and their Corresponding Weights

Subject	Exam Percentage
Hematology	20%
Microbiology and Parasitology	20%
Clinical Chemistry	20%
Blood Banking & Serology	20%
Clinical Microscopy	10 %
Histopathologic Techniques & Medical Technology Law	10 %

Hematology, Microbiology and Parasitology, Clinical Chemistry, Blood Banking and Serology are considered as major subjects, while the latter are categorized as minor subjects (Cruz, 2019). Each subject, whether it is major or minor, will have 100-item multiple choice questions (Cruz, 2019). The board is the one responsible for the computation of the examinee's general average according to the relative weights of each subject (R.A. 5527 section 19, 1969).

As cited in R.A. 5527 section 19, a candidate must acquire a general average of at least 70% in the written examination, with no 50% and below rating in any of the major components of the examination. In addition to that the candidate must not fail in at least 60% of the subjects computed (R.A. 5527 section 19, 1969). However, a 12-month refresher course in an accredited laboratory must be completed if an examinee fails to pass the board exam for 3 consecutive times (R.A. 5527 section 19, 1969).

Through the utilization of the PRC's Licensure Examination and Registration Information System (LERIS), the application for the Medical Technology licensure examination can now be accessed online (Professional Regulation Commission, 2020). In order to apply for the board examination, an individual must be a graduate of Bachelor of Science in Medical Technology or Bachelor of Science in public health, and has accomplished a 6-month internship program in an accredited training laboratory; in addition, the applicant must be in good shape and has a good moral character (Puno, N.D.). Moreover, the application also includes the following (a) NSO or PSA birth certificate, (b) for married female applicants, NSO or PSA marriage certificate, (c) transcript of records with scanned picture and remark indicating "For Board Examination Purposes", (d) and lastly, a 900.00 pesos (P900.00) payment

both for first time and repeat takers (Professional Regulation Commission, N.D.). However, graduates from other medical professions must acquire the minimum requirements set forth by the Medical Technology Law in order to take the licensure examination.

Correlation between Internship and Board Performance:

Having established how internship programs function as an avenue for equipping and preparing undergraduates for their respective career settings after finishing their degree, it is evident that internship programs may be associated with resulting board or licensure examination performances. Several literatures have reviewed various factors relating to internship and internship programs and the relationship and association that they may have with the outcome of board examination performances of students.

According to Barry University (2020), the internship phase in the medical technology program serves as a "comprehensive, practical experience" that is able to prepare the students for licensure examinations.

In a study conducted in 2012 by Pasia, Garzon, and Bauyot for the Asian Journal of Health, it was found that the clinical internship weighted point average was correlated with the performance in the Medical Technology Licensure Examination of the graduates of San Pedro College from 2005 to 2009. Garnering the highest correlation coefficient of 0.540, the clinical internship weighted point average was deemed the independent variable with the strongest positive relationship with the outcome of the performance of San Pedro College medical technology graduates in the licensure examination. Furthermore, it was revealed through the stepwise regression model that the clinical internship weighted point average is the best indicator of whether the result of the Medical Technology Licensure Examination results would be passed or failed. In this regard, it was concluded in the study that an improved, reinforced, and overall strengthened internship program would aid in the improvement of the board performance of San Pedro College graduates in the Medical Technology Licensure Examination (Pasia, Garzon & Bauyot, 2012).

Another study conducted by Besares-Dayaganon and Limjuco in 2016 was able to discuss and elaborate on the correlation between variables such as academic proficiency, internship performance rating, and preparedness for the American Society for Clinical Pathology certification examination of medical technology graduates in Region XI. In this study, a significant direct, moderate correlation ($r = 663$, $p < .05$) was observed between the internship performance of medical technology graduates and their level of preparedness for the American Society for Clinical Pathology certification examination. Data from this study suggests that the level of preparedness of the 2014 Region XI medical technology graduates for the said certification examination is directly related to the level of internship performance rating (Besares-Dayaganon & Limjuco, 2016).

The length of internship may be considered as one of the least discussed subjects in studies regarding student outcomes (Hora, et al., 2017). As observed in related literature mentioned previously, internship grades were the more common variable correlated with board or licensure examinations. However, in 2012, Valdez, et al. were able to publish an initial evaluation of the 6-month internship training program for the Medical Laboratory Science education in Lyceum of the Philippines University. Their evaluation showed that the objectives of the medical laboratory science internship program were still achieved in a 6-month internship, despite it being the shorter length of internship compared to the standard 1-year internship program for medical laboratory science prescribed in CMO no. 27 series of 1998 (Valdez, et al., 2012). In 2013, Valdez, Panganiban, & Alday published a study entitled "Outcomes of Curricular Enhancement in a Health Program: LPU CAMP Experience" wherein they were able to further evaluate the changes brought about by the implementation of CMO no. 14 series of 2006. Findings of this study are observed to be similar and in line with those from the study published by Valdez, et al. in 2012.

In this light, the proponents aimed to conduct a correlational study between the length of internship and the board performance of the 2019 Medical Technology Board Examination passers. As opposed to other studies, this research sought to discover the association between the board performance and the length of internship program of 366 passers of the 2019 Medical Technology Board Examination who had undergone either a 6-month internship program or a 1-year internship program as part of their bachelor's degree, as well as to determine their perspectives on different methods of Preparation for the MTLE and the adequacy of their respective lengths of internship

Application:

Medical technology, both as a field and a profession, has been considered vital in the achievement of sustainable healthcare (MedTech Europe, 2019). It is deemed necessary to continuously improve, advance, and build in the field of medical technology. In this light, the proponents intend to conduct the study in order to reveal the correlation between length of internship program and the 2019 board performance of the Medical Technology Licensure Examination passers. This research could then serve as a basis that can influence the understanding of medical technology interns regarding the choice of clinical internship programs that can further affect the performance in the licensure examination. Such literature can further improve the quality of healthcare provided by medical technologists by being effectively trained, competent, and proficient healthcare providers. In general this study thus contributes in a significant way to the existing body of knowledge in the field of medical technology.

Since the 1960s, the Philippines has been one of the biggest providers of immigrant workforce consisting mostly of healthcare workers to the United States and other countries (Brice, 2019). Nurses and medical technologists, majority of which are females (Data USA, 2019), are said to be among the most sought after healthcare-related professionals abroad (Nurses and Medical Technologists, Most In-Demand Healthcare Jobs Abroad, 2017). This phenomenon has consequently resulted in a decreased healthcare workforce in the country with more and more Filipinos opting to work abroad. At present, with the outbreak of SARS-COV-2 resulting in a global pandemic and with the healthcare capacity of the country reaching its limits (UP COVID-19 Pandemic Response Team, 2020), the need for doctors, nurses, and medical technologists who are frontliners against the threat of COVID-19 has been greatly heightened. Similarly, the demand for healthcare professionals abroad has increased with countries wanting to reinforce their healthcare capacity and workforce for future health crises (Singhal et al., 2020). This trend in demand will continue for the years to come ensuring job opportunities for Filipinos in the field of healthcare. Being able to identify these challenges being faced by the field of medical technology today, there is an acknowledgment of an impending call for the development of medical technology, not only locally-based, but on a global scale. Avenues for preparation for the profession, such as internship programs and licensure examinations, must be further refined in order to ensure the production of competent, compassionate, and committed medical technologists in the future.

Synthesis:

Internship or practical training program is an advanced practice that requires graduating students to undergo 6 months to 1 year duty to apply what they have learned academically in the real-life setting. Students are deployed in their specific field to assess their level of knowledge regarding their course as well as to teach them by experiencing real-life scenarios. This being said, the internship may be considered as an underlying factor for the result of the student's licensure board exam.

Specifically, the group aimed to distinguish the significance of the variation in length of internship in medical technology in the board examination performance. The target of the study are medical technology board examination passers who completed a 6 months and 1-year internship program during the 2019 Medical Technology Licensure Examination. The study focused on the resulting score of the board takers and questionnaires were used as a tool in gathering data. Outside factors such as self-study or enrolling in a review center were considered insignificant since the main focus of the study is solely the factor of the length of internship in the board exam performance in terms of rating.

The main objective of the study is to evaluate and compare the performance of the 2019 Philippine Medical Technology Board Exam takers with an internship of 6 months and 1 year. Furthermore, the study also aims to discover the methods of board exam preparation that are most commonly considered by the 2019 medical technology board exam passers who have completed either a 1-year or a 6-month internship program, and determine whether the 2019 medical technology board exam passers who have completed either a 1-year or a 6-month internship program consider their length of internship to be adequate enough in their preparation for the board exam. The proponents conducted this study in order to help the medical technology interns recognize the importance and quality of internship with regard to their board examination. Moreover, the study will help the educational institutions determine the appropriate length of internship they have to implement in order to produce skillful and competent future medical technologists. Ultimately, the group expects that the analysis and data gathered from this research will help in improving the clinical internship program of medical technology in the Philippines.

B. Theoretical Study

In determining the correlation of the length of internship and performance in the 2019 Medical Technology Board Examination, the study employed the Systems Approach by von Bertalanffy (1968) and Experiential Learning by Kolb (1984).

The Systems Approach Theory by von Bertalanffy (1968) suggests that all interacting elements are interrelated and interdependent on each other, thus, forming a unitary whole. While taking into account the interdependence of all the elements, this theory focused on the system's overall effectiveness rather than the effectiveness of its interdependent elements (von Bertalanffy from Pasia, et. al., 2012).

Schools themselves being an organization is a system – every project or undertaking affects all other elements thereby forming a larger pattern that is distinct from any of the parts (Schwaninger, 2000). System theory is a way of looking at a school as a learning organization (Lunenburg & Ornstein, 2004). It is tackled with reference to input, transformation process, output, feedback, and environment (Lunenburg & Ornstein, 2004).

The paradigm of the study depicted in figure 1 inferred that the length of internship of board takers has an impact on their examination performance. The relationship existing between the input and output variables can be associated with the experiential learning theory. The performance of the 2019 board examination passers will give feedback which among the input variables is preferable for undertaking to guarantee a positive outcome in board examinations.

Experiential learning theory (ELT) accounts that learning is best achieved through experience (Kolb, 1984).

According to Kolb (1984), ELT works in 4 stages: Concrete learning, reflective observation, abstract conceptualization, and active experimentation. The first 2 stages of the cycle entail grasping an experience while the latter stages focus on experience transformation. That said, the duration of internship is presumed to be correlated with the performance in the board examination.

C. Conceptual Framework

Internship programs allow students to become exposed to the possible conditions they may experience when practicing their profession after completing all academic requirements. Aside from passing undergraduate courses in the medical technology program, the successful completion of the internship also stands to be an essential requirement that deems a student qualified for the MTLE. This being said, the length of internship presents a considerable impact on the students' performance in the licensure examination. It also implies that the performance of students is significantly correlated with the length of their internship.

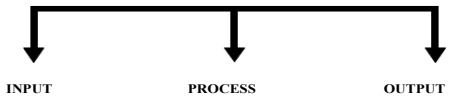

Figure 1. Paradigm of the Study

As shown in Figure 1, the researchers conducted online surveys in gathering the data and determined the correlation of licensure examination performance of respondents to the length of their internship program with the use of varying statistical tests such as frequency, percentage, p-value, and Spearman's Rho for the data analysis.

III. RESEARCH METHODS

A. Research Design

This study utilized mixed elements of a comparative, correlational, and quantitative research design. As a correlational study, it sought to determine the statistical relationship between two quantitative variables: (a) the length of medical technology internship period and (b) performance in

the medical technology licensure examination. Given that in 2019, universities and colleges in the Philippines with the medical technology program offered either a 6-month internship period or a 1-year internship period, a causal-comparative method was employed to contrast both internship periods' relationship to board performance.

Moreover, as a descriptive, non-experimental, quantitative study, in which data is collected through a survey conducted through Google forms, it sought to systematically describe such a relationship without any effort to manipulate or control the two variables. Likewise, descriptive statistics such as frequency and percentage were used as parameters to determine how the 2019 Licensure Examination performance of graduates with 6-month internship compare with those who had a 1-year internship. Spearman's Rho, which is a non-parametric test, was used to determine the association between the two variables. On the other hand, the statistical calculation of the p-value was used to determine the rejection and acceptance of proposed hypotheses of the study (as seen in Chapter 1.4).

It is important to note that the research is not a qualitative study despite the use of methods used to generate qualitative data through open-ended questions. Therefore, the research design that would be used to gather data, attain the objectives of the study, and formulate and justify its conclusions, is at large, quantitative.

B. Subjects and Study Site

Subjects of the study were chosen through non-probability convenience sampling. For the purpose of establishing the allowable error for the study's data to be considered significant, the Raosoft software was utilized to compute the study's sample size so as to attain a 95% level of confidence. Thus, for this study, a total of 366 respondents out of the 7,544 passers of the 2019 MTLE was needed for the study to become 95% certain or reliable. Participation in the study was voluntary. Due to the nature of this sampling method, however, the inferences or generalizations from the results were only limited to the surveyed respondents.

The batch of medical technologists who took the MTLE in 2019 were the chosen subjects of the study given that their curriculum at that time complies with CMO 14 s. 2006 which allows for a 6-month internship as a requirement for a degree in medical technology. In addition, the proponents of the study chose to focus on MTLE passers of 2019, as it was the year prior to the COVID-19 pandemic, before the implementation of flexible learning strategies involving online and modular learning in higher education. Lastly, the preceding years in which the MTLE was conducted was also excluded as it would expand the scope and sample size of the study to a point no longer feasible for the researchers given the constraints brought about by the pandemic.

Data gathering was held online through various social media platforms. The source of the subjects include the list of passers from the 2019 MTLE made publicly available by the PRC. These individuals were then contacted through Facebook and Messenger. Passers of the MTLE conducted in previous and preceding years, as well as those who took the 2019 MTLE but did not pass, were included in exclusion criteria for the target population. Given that the subjects of the study were 2019 Medical Technology Licensure Examination passers, none were considered to be within the vulnerable sector.

C. Data Measure or Instrumentation

The study employed a questionnaire adapted from both the work of Hill-Besinque et.al. (2000) and Valbuena et.al. (2013). It was composed of questions coming from these studies combined. This questionnaire was structured, consisting of a series of open-ended and closed-ended questions in multiple choice and short answer format designed to be answered by the respondents without any interventions from the researchers. Closed-ended questions were to be answered by the respondents by selecting from the options formulated by the researchers. Open-ended questions, on the other hand, allowed the respondents to respond based on what they thought was appropriate for the question. Despite the use of open-ended questions, the research remains to be a mix of a comparative, correlational, and quantitative design, not to be mistaken for a qualitative study. The researchers used the Google Forms as a platform in collecting data and was distributed to the respondents online through social media. A pilot testing was conducted prior to the data gathering procedures in order to ensure that the survey questions were appropriate, answerable by the respondents, and obtained the necessary data for the objectives of the study. The information obtained from the pilot testing included the respondents' demographics, academic profile, and board exam information. The copy of the questionnaire is provided in Appendix D of this study.

D. Data Gathering Procedure

The study was carried on through the formulation and adaptation of a validated questionnaire. The target participants of the study were first identified and then we collaborated with them to ensure their participation in the data collection phase. This was followed by gathering data from respondents using the validated and approved questionnaire, employing the process of self-administration. Data gathering and the conduct of the study occurred online and throughout the duration of the school year 2020-2021 of the University of Santo Tomas Faculty of Pharmacy - Department of Medical Technology. The respondents on the other hand only engaged in the study for 10 minutes or less as they answered the questionnaire that was distributed. The data gathered from the questionnaire were analyzed using statistical tools and software with the help of accredited statisticians.

The answered questionnaires from the target participants of the study were subjected to several statistical tests such as frequency, percentages, p-value, and Spearman's Rho in order to come up with an analysis. The answers of respondents enabled the researchers to attain each objective and resolve each problem statement raised in the first chapter of the manuscript, mainly the correlation between the length of internship program and the board exam performance of the 2019 Medical Technology Board Examination passers. Through the gathered data and the use of statistical analysis, the proponents were able to compare the 2019 board performance of medical technology students who had undergone a 1-year internship program and students who had undergone a 6-month internship program.

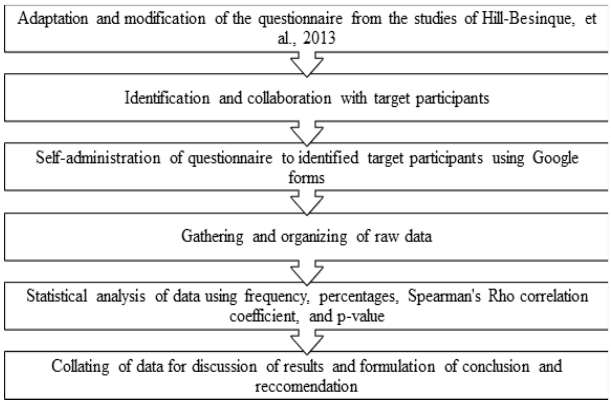

Figure 2. Data Gathering Procedure

E. Ethical Considerations

In the pursuit of this undertaking, ethical practices were observed to guarantee the integrity of the researchers and of the study. These considerations, as evaluated, validated, and approved by the University of Santo Tomas - Faculty of Pharmacy (UST-FOP) Ethics Review Committee in application to the conduct of the research, were to ensure that the study will not cross personal boundaries, violate human rights, or subject participants in any form of physical, psychological, moral, or ethical harm. The researchers are fully aware that any unethical practice has consequences negatively affecting the credibility of the study and its authors and participants. As such, the researchers upheld the highest ethical standards at every stage of the research process.

To ensure the validity and integrity of the study, the researchers chose methods that were most effectively fit to its objectives and identified its limitations and potential risks. The researchers upheld utmost honesty, transparency, and openness in the design and methods of the research, the analysis of data, and the discussion of results. The researchers consciously remained objective throughout the entire study to avoid prejudice or personal bias. Steps were taken to avoid any form of deception, exaggeration, or manipulation of data to influence the results to a favored outcome. Moreover, the researchers practiced responsible publication and cited only credible sources of information which met the standards of current times and avoided any form of duplication or plagiarism. The researchers made sure to take measures to guarantee the credibility of the study and ensured the best interest of its participants.

The participants of the study were reached by way of direct messaging of the 2019 MTLE passers (based from the list provided by the PRC) and also by the use of social media through posting the survey questionnaire in various social media groups associated with the profession. In contacting the said individuals, participation was voluntary and researchers did not insist or force any individual had they refused to participate. The participants were oriented on the nature of the study, the means for data collection, its purpose, and how their information would be used. The researchers informed the respondents of their rights in terms of data privacy, confidentiality, and anonymity, and their responsibility to answer the questionnaire with utmost honesty and integrity, all of which were stipulated in the informed consent attached in the Google form.

There were no expected conflicts of interest in the conduct of the study as data were directly sourced from the respondents and public data from the PRC website. The study only considered the correlation of the respondents' performance in the 2019 Medical Technology Licensure Examination and their length of internship; thus, there was no account, association, or prejudice of the curriculum of the schools or universities in which participants attended.

The researchers made sure that the participants were not subjected to any physical or psychological harm in the forms of stress, feelings of anxiety, or diminished self-esteem. But considering the nature of the study, which merely involved online surveying instruments for data collection, there was no physical or economic harm associated with the study. However, in the event of such, the researchers remained as mere investigators and thus, did not provide any form of healthcare or intervention. The participants always had the choice to discontinue their involvement at any point of the study. However, it was necessary for the participant to inform the researchers that they had chosen to withdraw. The researchers also ensured the anonymity of the respondents and the confidentiality of disclosed information. Should the study be made publicly available, the identity of the respondents will not be disclosed in any part of the manuscript; the respondents' data remains confidential and presented as summarized and tabulated results. The researchers recognized the rights of all individuals to data privacy, as well as the legal, moral, and ethical implications of violating an inherent and universal human right.

In accordance with data privacy and security, only the researchers and their respective mentors had access to the research manuscript and the data regarding the respondents. These files were digitally secured in a Google drive, only accessible to the aforementioned individuals. In addition, the files were saved for backup in an external USB drive kept by the principal investigator for possible future use. Had a respondent refused storage of one's data and use of said data in similar research ventures in the future, as they had indicated in the Google form, the researchers have duly complied with the request. In such a condition, the use of the respondents' data was limited to the duration of the study, after which, all digital footprints of respondents' data were permanently deleted. The participants, on the other hand, were given post-study access to tabulated results and a copy of the manuscript through a separate Google drive managed and disseminated by the researchers. A link to the drive was sent through email, as solicited in the questionnaire.

The study was not sponsored or funded by any institution and was only affiliated with the University of Santo Tomas. The study was conducted in fulfilment of requirements for the course, Thesis Writing, in accordance with the curriculum for Medical Technology under the Faculty of Pharmacy of the university. As such, the researchers were merely guided and advised by the faculty, their adviser, the statisticians, and the Ethics Review Committee towards the completion of the study. Out-of-pocket expenses from the study, including the purchase of consumable materials, the employment of personal services from the statisticians, the fee for editing the manuscript, the fee for Ethics Review Committee, and the contingency budget, were shouldered by the authors and were non-reimbursable.

Lastly, there was no monetary payment or any form of compensation for participating in the study. But despite the lack of direct benefits in taking part in the research endeavour, the participants had essentially contributed to the realization of the objectives and purpose of the study. The study outcomes were significant to the field of medical technology and community of medical technology interns. The study can be improved in terms of sampling method and population size, as per the recommendation of the researchers, and be used as a basis by the Commission on Higher Education (CHED) and schools and universities offering the course, to improve the medical technology curriculum in the country. Likewise, the results of the study can be used as a framework for lawmakers in updating standards of medical technology practice and education to be at par with national and international standards of the profession in the current times. This was made possible only with the participants' cooperation.

F. Data Analysis

The data analyzed in this study were collected using the questionnaire described in Chapter 3.3 Data Measure or Instrumentation. In order to determine answerability, and the appropriateness of the questions and answer format in relation to the needed data, pilot testing was conducted. A week was allotted to gather 30 respondents who were asked to answer the approved questionnaire. Once pilot testing was completed, the questionnaire's suitability and consistency were evaluated by the proponents.

Through the pilot testing, the proponents were able to ensure the answerability and appropriateness of the questionnaire to be used in the collection proper. It was determined in this testing that the short-answer format in obtaining the board exam rating of the respondents was not suitable for the statistical treatment of data. As such, the short-answer format was changed into a list of ranges of academic grading to choose from as presented in Table no. 5. Moreover, it resolved the difficulty encountered by the respondents in recalling their exact rating in the 2019 MTLE. In conducting the aforementioned testing, it is to be noted that Cronbach's alpha, which determines the statistical reliability of the questionnaire, was not applicable to the type of questions in the survey which mostly involved demography. Lastly, the target respondents for the pilot testing were the same target respondents for the survey proper following the established inclusion and exclusion criteria of the study. Respondents who participated in the pilot testing were no longer asked to participate in the data collection proper.

The quantitative analysis of the data gathered for the study employed the use of statistical tests such as frequency, percentages, p-value, and Spearman's Rho. The frequency and percentages were utilized to provide an initial summary and description of the data that were collected through the Google Form questionnaire. It enabled the researchers to determine the distribution of the respondents as well as the distribution of their scores based on the length of internship, to better form the analysis and interpretation of data.

The p-value was used as a measure of acceptance and rejection of the proposed hypotheses of the study. A significant association between the concerned variables may be observed when the p-value is less than 0.05 (p-value < 0.05). On the other hand, a p-value that is greater than 0.05 (p-value > 0.05) indicates that there is no significant association between the concerned variables. A p-value less than 0.05 provides evidence that entails the rejection of the null hypothesis and acceptance of the alternative hypothesis. In this study, the p-value indicated the significance of the association between the length of internship and the 2019 Medical Technology Board Exam performance. (The Pennsylvania State University, 2021).

Similarly, the Spearman's Rho was also utilized to measure the strength of association between length of internship of the 2019 Medical Technology Board Examination Passers and board performance. Spearman's Rho is a statistical tool which determines the monotonic relationship between two paired variables. When contrasted to Pearson's, which requires for the normality, Spearman is a nonparametric statistic which requires data to be either in interval, ordinal, or in ratio. On the other hand, it is similar to Pearson's correlation wherein it returns values (r_s) from -1 to 1 in which the closer the value is to ± 1, the stronger the relationship: a value of (+1) indicates a perfect positive correlation, a value of (-1) indicates a perfect negative correlation, and a value of (0) indicates no correlation. The equation for Spearman is as follows:

$$r_s = 1 - \frac{6 \sum D^2}{N^3 - N}$$

The range of correlation coefficient proposed by Evans, J. D. (1995) was used in order to identify the level of correlation based on the resulting correlation coefficient value (seen in Table no. 4).

Table 4. Levels of Correlation based on the Range of Correlation Coefficient Values

Range of Correlation Coefficient Values	Levels of Correlation
0.80 to 1.00	Very Strong Positive
0.60 to 0.79	Strong Positive
0.40 to 0.59	Moderate Positive
0.20 to 0.39	Weak Positive
0.00 to 0.19	Very Weak Positive
-1.00 to -0.80	Very Strong Negative
-0.79 to -0.60	Strong Negative
-0.59 to -0.40	Moderate Negative
-0.39 to -0. 20	Weak Negative
-0.19 to -0.01	Very Weak Negative

For further classification of data, the Medical Technology Board Examination scores were classified according to a scale adapted from the research of Besares-Dayaganon and Limjuco in 2016 entitled "*Academic Proficiency, Internship Performance Rating, And The Preparedness To ASCP Certification Of The Medical Technology Graduates In Region XI: Basis For The Enhancement Of Clinical Internship Curriculum*". The adapted scale for academic grading is as follows:

Table 5. Academic Grading for Board Exam Ratings

Board Examination Rating	Description
95% to 100%	Excellent
90% to 94%	Very good
85% to 89%	Good
80% to 84%	Average
75% to 79%	Fair (Passed)

As seen in Table no. 5, the board examination rating is scaled and interpreted from "excellent" to "fair (passed)", with "excellent" being equal to a rating of 95% to 100%, and "fair (passed)" being equal to a rating of 75% to 79%. It is noted that there is no allotment of range and description for failed grades since the target participants of the study are exclusive to the 2019 Medical Technology Board Examination passers.

To further the discussion on the relationship of the two variables, the researchers also sought to determine the views of the respondents on other methods of preparation for the licensure examination and their opinion on the adequacy of the length of their internship program. In these objectives, the same descriptive statistics of frequency and percentage were used to describe the various perspectives of the respondents. In both parts of the research questionnaire seeking to answer the said objectives, the respondents are given a list of pre-made choices to express such views and opinions. However, they are also given the option to elaborate their own ideas on the given topic through a type-in, short answer format. As mentioned in the research design, data on the verbalizations of the respondents, though considered as qualitative, are not to obscure the study's correlational, comparative, and quantitative research design. The study remains at large to be quantitative and the verbalizations are only used as additional material to further the discussion on the topic at hand.

IV. Presentation, Analysis, And Interpretation Of Data

A. Results

This chapter includes the presentation of results, statistical analysis, and interpretation of data that were gathered throughout the course of the study. It is divided into 3 segments: (1) demographic profile of the respondents, (2) statistical analysis on the correlation of the length of internship and board exam rating of respondents, and (3) respondents' perspectives on the adequacy of the length of internship and other methods of preparation for the MTLE.

The population was subjected to a demographic analysis of age and sex as shown in Figure no. 3 and 4. This analysis revealed that the majority of the respondents were in their early to mid-twenties, between the ages of 22 to 25 years old, which comprised 90% of the total population. On the other hand, the remaining 7% of the total respondents were between the ages of 18 to 21 years old and only 3% were above the age of 25.

Demographic Profile:

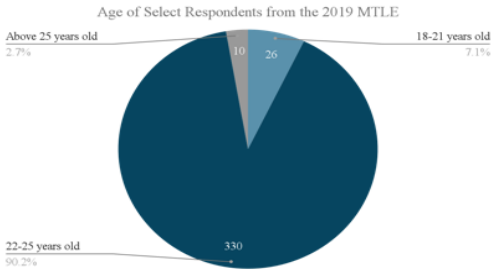

Figure 3. Age of Select Respondents from the 2019 MTLE

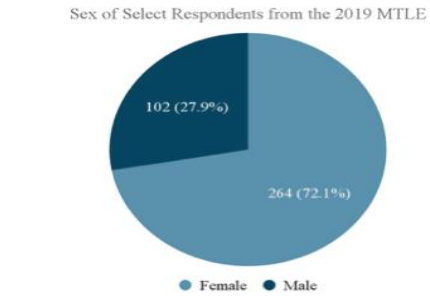

Figure 4. Sex of Select Respodents from the 2019 MTLE

Meanwhile, the demographic analysis based on biological sex revealed that the majority of the respondents were females, comprising 72% of the total population, whereas the remaining 28% were males.

Length of Internship and the 2019 Medical Technology Licensure Examination Rating:

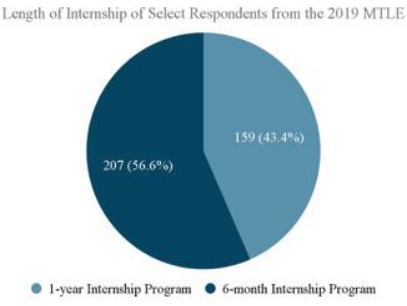

Figure 5. Length of Internship of Select Respondents from the 2019 MTLE

Table 6. Distribution of Select Respondents based on the Length of Internship and theirSchedule for the 2019 MTLE

Length of Internship Program	Month when Medical Technology Licensure Examination was taken in 2019	Count	Percentage
1-year internship program	March	78	21.31%
	September	81	22.13%
	Total	**159**	**43.44%**
6-month internship program	March	107	29.23%
	September	100	27.32%
	Total	**207**	**56.56%**
Total		366	100%

Figure no. 5 provides an overview of the distribution of respondents based on the lengths of their internship program. Out of the 366 respondents, 207 respondents, which account for 56.6% of the total population of respondents in the study, took a 6-month internship program. On the other hand, the remaining 159 respondents, which correspond to 43.4% of the total population of respondents in the study, took a 1-year internship program. It is evident that the majority of the respondents represent those which took a shorter internship.

Moreover, Table no. 6 provides a summary of the distribution of respondents based on the length of their internship program and further categorizes the population based on the month at which they took the 2019 Medical Technology Licensure Examination which was conducted twice the said year. Out of the 159 respondents who had a 1-year internship, 78 took the MTLE in March and the remaining 81 in September; this corresponds to 21.31% and 22.13% of the total population respectively. In contrast, out of 207 respondents who had a 6-month internship, 107 took the MTLE in March and the remaining 100 in September; this corresponds to 29.23% and 27.32% of the total population respectively.

Table 7. Distribution of Select Respondents based on the Length of Internship and their Rating in the 2019 MTLE

Length of Internship Program	2019 Medical Technology Licensure Examination Rating	Board Exam Rating Description	Count	Percentage
1-year internship program	75% to 79%	Fair (Passed)	31	8.47%
	80% to 84%	Average	76	20.77%
	85% to 89%	Good	48	13.11%
	90% to 94%	Very Good	2	0.55%
	95% to 100%	Excellent	2	0.55%
	Total		**159**	**43.44%**
6-month internship program	75% to 79%	Fair (Passed)	65	17.76%
	80% to 84%	Average	99	27.05%
	85% to 89%	Good	41	11.20%
	95% to 100%	Excellent	2	0.55%
	Total		**207**	**56.56%**
Total			366	100%

Table no. 7 shows the comparison of the 2019 MTLE performance of the respondents made based on their distribution in terms of their respective length of internship and rating in the 2019 MTLE. It was observed that out of the 96 respondents that rated 75% to 79% in the 2019 MTLE, 65 respondents were from those who had undergone a 6-month internship program while only 31 respondents belonged to those who had undergone a 1-year internship program. The 4 respondents that rated 95% to 100% were equally divided between the two involved lengths of internship, as there were 2 respondents each from 1-year internship and 6-month internship that obtained the aforementioned score. Majority of respondents from both 1-year internship and 6-month internship rated 80% to 84% during the 2019 MTLE, with 76 respondents coming from those who had 1-year internship and 99 respondents coming from those who had 6-month internship program. Results also showed that 4 respondents from those who had undergone a 1-year internship program performed "very good" to "excellent" (refer to Table no. 5) during the 2019 MTLE, whereas only 2 respondents from those who had undergone a 6-month internship obtained an "excellent" rating during the said board exam. No respondents out of the 207 respondents who had undergone a 6-month internship obtained a rating of 90% to 94%.

Table 8. Spearman Rank of the Length of Internship and Rating of Select Respondents in the 2019 MTLE

Coefficient	Estimate	Interpretation
rho	-0.1650562	Very weak negative association
p-value	0.001531	The association is significant

The correlation between the length of internship and the 2019 medical technology board performance of the 366 respondents was measured based on their examination rating. Based on the computed rho coefficient, the association between the length of internship and the 2019 MTLE performance of the 366 respondents of the study was observed to be a very weak negative (rho coefficient = -0.19 to -0.01) level of correlation. This also corresponds with the results of the comparison of the 2019 MTLE performance of the respondents made based on their distribution in terms of their respective length of internship and rating in the 2019 MTLE. A very weak negative indicated that the association between the length of internship and the 2019 medical technology board performance of the 366 respondents was indirectly proportional. The computed p-value showed that the observed very weak negative level of correlation of the involved variables for the participating population of the study may be considered significant (p-value < 0.05).

Perspectives on the Methods of Preparation for the MTLE and Adequacy of the Length of Internship:

Table 9. Perspectives of Select Respondents on the Methods in Preparing for the Licensure Examination

Methods	Count	Percentage
1-year internship program	**159**	**43%**
Medical technology internship	145	91%
Notes and books from undergraduate years	146	92%
Other outsourced books and practice tests	121	76%
Self-study	121	76%
Study groups	65	41%
Enrolling in online review centers	15	9%
Enrolling in face-to-face review centers	144	91%
Others	5	3%
6-month internship program	**207**	**57%**
Medical technology internship	167	81%
Notes and books from undergraduate years	177	86%
Other outsourced books and practice tests	143	69%
Self-study	159	77%
Study groups	77	37%
Enrolling in online review centers	21	10%
Enrolling in face-to-face review centers	189	91%
Others	7	3%
Total	**366**	**100%**

Table no.9 presents the different approaches among respondents in preparing for the licensure examination. In the given Google Form survey, this particular question provides the respondents the option to select multiple answers. Results of the study show that for both respondents coming from a 6-month internship and a 1-year internship program, the three most common methods of preparation for the MTLE include: (1) the clinical internship itself, (2) the use of notes and books from their undergraduate years, (3) and enrolling in face-to-face review centers.

Among those who took a 1-year internship, (1) studying their notes and books from their undergraduate years was the most common approach of preparation, selected by 92% of the respondents. Then, tied at second and third, as chosen by 91% of the total subgroup population, is (2) the clinical internship and (3) the aid of face-to-face review centers. In contrast, among those who took a 6-month internship, the most common method of preparation is (1) enrolling in face-to-face review centers, as selected by 91% of the total subgroup population. This is followed by the use of notes and books from their undergraduate years, as chosen by 86% of the respondents. And at third, the (3) clinical internship, as chosen by 81% of those who took a shorter internship period.

Respondents from both internship periods also considered the following methods, apart from the above mentioned factors, as common means of preparation for the board examination: (4) self-studying, (5) using other outsourced books and practice tests, (6) participating in study groups, (7) and enrolling in an online review center. Other respondents also noted additional methods of preparation including watching Youtube videos, attending their respective school's review seminars or in-house reviews, advance reading, self-studying using self-made reviewers and flashcards, and prayers before the licensure examination.

Table 10. Perspectives of Select Respondents on the Adequacy of the Length of their Internship Program in Preparation for the 2019 Licensure Examination

Length of Internship Program	Was the length of your internship program adequate enough in preparing you for the licensure examination?	Count	Percentage
1-year internship program	Yes, my internship was long enough for me to learn things I needed to be fully prepared for the licensure examination	132	36%
	The length of my internship was somewhat adequate. It moderately prepared me for the licensure examination.	25	7%
	Others	2	1%
	Total	**159**	**43%**
6-month internship program	Yes, my internship was long enough for me to learn things I needed to be fully prepared for the licensure examination	105	29%
	The length of my internship was somewhat adequate. It moderately prepared me for the licensure examination.	94	26%
	No. My internship was not long enough for me to learn the things I needed to be fully prepared for the licensure examination	7	2%
	Others	1	0%
	Total	**207**	**57%**
	Overall Total	**366**	**100%**

Table 11. Statements of Respondents who Answered 'Others' in the Question regarding their Perspective on the Adequacy of the Length of their Internship Program in Preparation for the 2019 Licensure Examination

Respondent	Length of Internship	Answer
1	1-year internship	*"Base[d] on my experience I am not compelled to say that the length of my internship has to do with me passing the board exam."*
2	1-year internship	*"I think most of what I've learned during internship were the practical side about the real life laboratory. For me, all the answers to the questions of the board exams were already found on[in] the books and other resource materials. So I don't think the length of my internship greatly affected how prepared I am for the board exams. Instead, it prepared me enough to work overtime the 8-hour shifting schedule all throughout the week, to still be functional under stress and pressure, and to have strong legs for running to and fro the hospital wards, because the books did not prepare us for those."*
3	6-month internship	*"I learned a lot of things in my internship that moderately help[ed] me in my preparation for the board exam but I wished it would've been longer than 6 months."*

Table no. 10 shows the views of the respondents on the adequacy of the length of their internship period in preparing for the licensure examination. 7% of the total respondents, all of which took a 1-year internship, consider the length of their internship period as only somewhat adequate, only moderately preparing them for the licensure exam. Meanwhile, among those who took a 6-month internship relative to the total population, 26% of which also consider their internship period as only somewhat adequate. Furthermore, at least 2% of the total population of those which took a 6-month internship claimed that the length of their internship was not long enough to have fully prepared them for the licensure examination; there were no respondents from a 1-year internship program to share this sentiment. With this data, it may be observed that those respondents who do not consider their length of internship to be adequate enough in terms of preparing them for the MTLE belong to those who had a shorter internship period.

Furthermore, at least 1% of the respondents from both a 6-month internship and a 1-year internship period, who chose to share their own views, consider the length of their internship as having no significant effect on their performance in the board examination. Table no. 11 shows the statements of the 3 respondents who answered 'Others' in the question regarding their perspective on the adequacy of the length of their internship program in preparation for the 2019 MTLE. 2 out of these 3 respondents, both from those who had undergone a 1-year internship, said that, in their personal opinion, the length of their internship has no association with their performance in the 2019 MTLE. The remaining 1 out of the 3 mentioned respondents had undergone a 6-month internship program. This respondent stated that his/her internship helped moderately in terms of preparation for the 2019 MTLE and that he/she would have preferred an internship program longer than 6 months.

Even so, it was observed that the majority of the respondents from both the 1-year internship program and 6-month internship program consider their internship periods long enough to have fully prepared them for the licensure examination. This accounts for 36% and 29% of the total population respectively.

B. Discussion

Figure 3. Age of Select Respondents from the 2019 MTLE
Figure 4. Sex of Select Respondents from the 2019 MTLE

The findings indicated in Figure 3. *Age of Select Respondents* from the 2019 MTLE, revealing that the majority of the respondents (90%) are between the ages of 22-25, is consistent with the expected age group of individuals who took the MTLE in 2019 at the time the study was conducted. Meanwhile, the findings indicated in Figure 4. *Sex of Select Respondents from the 2019 MTLE*, revealing that the majority of respondents are females encompassing 72% of the total population, is consistent with the data produced by Data USA (2019) which determines demographic profiles of various occupations including gender composition. According to Data USA, the medical technologist workforce is mostly females, accounting for 71% of the total workforce population.

Figure 5. Length of Internship of Select Respondents from the 2019 MTLE
Table 6. Distribution of Select Respondents based on the Length of Internship and their Schedule for the 2019 MTLE

Figure no. 5 *Length of Internship of Select Respondents from the 2019 MTLE* shows that the majority of the respondents of the study are coming from a 6-month internship program, accounting for 56.6% of the total population. On the other hand, the remaining 43.4% represents those coming from a 1-year internship program. Due to the nature of a convenience, non-probability sampling, which limits the authors to respondents who are within reach of contact and are readily available, the researchers have no control towards the distribution of the population based on the length of internship. Thus, the distribution of respondents based on the said criteria cannot be made equal.

Moreover, Table no. 6 *Distribution of Select Respondents based on the Length of Internship and their Schedule for the 2019 MTLE*, which further categorizes the respondents coming from both lengths of internship into those which took the MTLE in March or September, simply provides a demographic overview of the population. It is worth noting that in determining the correlation between the two study variables, the month in which the respondents took the MTLE was not considered as a determining factor, as indicated in the limitations of the study.

Table 7. Distribution of Select Respondents based on the Length of Internship and their Rating in the 2019 MTLE
Table 8. Spearman Rank of the Length of Internship and Rating of Select Respondents in the 2019 MTLE

Table no.7 shows the distribution of select respondents based on the length of internship and their rating in the 2019 MTLE. Given that the highest percentage of respondents who performed "average" and above in the 2019 MTLE are coming for a 6-month internship program, the proponents of the study are led to deduce that for the 366 surveyed respondents, those with a shorter length of internship obtained a higher rating in the 2019 MTLE than those who had undergone a longer internship period. The statistical relationship between the two variables are presented and discussed in the succeeding paragraphs.

Table 8. Spearman's Rank of the Length of Internship and Rating of Select Respondents in the 2019 MTLE shows the statistical relationship between the two study variables using Spearman's Rank correlation coefficient. The rho coefficient (= -0.1650562) suggests a very weak negative level of correlation between the length of internship and the performance of the surveyed respondents in the 2019 MTLE. This correlation was found to be significant as indicated by the p-value (= 0.001531). This implies an indirectly proportional relationship between the two study variables; that a shorter internship program correlates with a better performance in the 2019 MTLE. However, it must be noted that the presented results may be attributed to the distribution of respondents. Referring to Table 7. Distribution of Select Respondents based on the Length of Internship and their Rating in the 2019 MTLE, the majority of respondents belonged to those who had a 6-month internship, with 99 respondents (27.05%) rating 80% to 84% in the 2019 MTLE. This distribution may have influenced the outcome of the computed association applicable only to the 366 respondents of the study.

Nevertheless, this finding is supported by a study conducted by Valdez, et. al. (2012), which evaluated the 6-month internship program for Medical Technology education, and another study by the same author (Valdez, at al., 2013), which assessed CMO no. 14 series of 2006 as a curriculum enhancement for the program in Lyceum of the Philippines University, four years after its implementation. Their findings suggest that the implementation of the CHED memorandum order was a success as shown by the performance of their medical technology graduates in the licensure examination. This implies that a 6-month internship program is able to equip medical technologists with the necessary skills so as to provide entry-level competencies for the profession. The study concluded that the objectives of a 6-month internship program are still achieved to a moderate extent despite a shorter training period for medical technologists.

Moreover, the established association between the length of internship and performance in the 2019 MTLE conforms to the system theory for learning organizations as discussed in the study of Lunenburg & Ornstein (2014). The system theory suggests that learning is a culmination of interrelated and interdependent elements, an input which can actively manifest into a visible result in the form of an output, in which generalizations can be made to be regarded as feedback in the learning process. In relation to the study, the significant association indicated by rho coefficient and the p-value is substantial evidence that the length internship can be regarded as an input variable to produce a generally positive outcome in the licensure examination, an output whose results can be regarded as the feedback in the theoretical system. In which case, a shorter 6-month training period translates into better performance outcomes in the licensure examination as concluded from the results of the study. In addition, this finding is further consolidated by the experiential learning theory (ELT) by Kolb (1984), which suggests that learning is best achieved through experience. ELT is said to manifest in stages of (1) concrete learning, (2) reflective observation, (3) abstract conceptualization, and (4) active experimentation, stages which correspond to the internship for medical technologists where theories of the profession gained in the first three years of academic learning are put into practice. The findings of the study demonstrate that a 6-month internship period is the more viable learning experience in producing positive outcomes in the licensure examination.

Table 9. Perspectives of Select Respondents on the Methods in Preparing for the Licensure Examination

As previously presented, *Table 9. Perspectives of Select Respondents on the Methods of for Preparation for the Licensure Examination* shows that the common methods of preparation for the 2019 MTLE, as chosen by the 366 respondents coming from both internship periods, from the most preferred to the least, are as follows: (1) enrolling in face-to-face review centers, (2) use of notes and books form their undergraduate years, (3) the clinical internship, (4) self-studying, (5) use of other outsourced books and practices test, (6) study groups, (7) enrolling in online review centers, (8) others. Among the list, those which represent the preferred methods of the majority include the clinical internship. This

consolidates the need for the internship program as a prerequisite for the licensure examination as prescribed by R.A. 5527 (Congress of the Philippines, 1969). As such, the medical technology profession is among the 43 occupations under a Professional Regulatory Board of the PRC.

In addition, this finding coincides with the study of Bashwari, et al. (2006) entitled *"Attitudes of Medical Laboratory Technology Graduates towards the Internship Training Period at King Faisal University."* The study showed that their respondents recognized the importance and necessity of the clinical internship in consolidating theoretical knowledge through practical experience. The study concluded that their respondents had a very positive attitude towards the significance of the training period to their development as medical technology professionals. This disposition on the internship is necessary given this phase of the curriculum provides students with both theoretical and practical experience so as to prepare them for certification (Barry University, 2020).

Meanwhile, in a study conducted by Pasia, et al. (2012) entitled *"Determinants of Performance of Graduates in the Medical Technologist Licensure Examination,"* the academic predictors in the MTLE were assessed, revealing that the internship weighted point average had the highest correlation with the performance of medical technology graduates in the licensure examination. This further supports the necessity of the clinical internship as a preparatory tool for the MTLE. Likewise, the study also indicates other predictors of performance in the licensure examination, conclusive with the other methods of preparation, as selected by the surveyed respondents of the study.

Table 10. Perspectives of Select Respondents on the Adequacy of the Length of their Internship Program in Preparation for the 2019 Licensure Examination

Table 11. Statements of Respondents who Answered 'Others' in the Question regarding their Perspective on the Adequacy of the Length of their Internship Program in Preparation for the 2019 Licensure Examination

Table no. 10 and 11, presents the perspectives of the select respondents of the 2019 MTLE on the adequacy of their internship periods in preparation for the licensure examination. The results of the study show that the majority of the respondents coming from a 6-month and a 1-year internship program consider the lengths of their internship as being adequate enough in preparing them for the licensure examination.

Despite the majority's claim on the adequacy of both internship periods in preparation for the board examination, there were at least 26% of the total respondents coming from a 6-month internship who considered their internship period as only 'somewhat' adequate. This is greater in comparison to the 7% of the total respondents coming from a 1-year internship program who shared the same sentiment. This point of vantage may be elucidated by the study conducted by Pasia, et al. (2012) which concluded that endorsing a 6-month internship as a viable training period to interns still poses a challenge given the reduced clinical exposure.

It is also noteworthy to state that all respondents who answered that their internship was not adequate enough were those who had a shorter internship period. Nevertheless, such inclination only accounts for 2% of the total population. Still, the majority of those who took a 6-month internship were satisfied with the length of their internship period. This coincides with the conclusion of Valdez, et. al. (2012) in their initial evaluation of the 6-month internship program for medical technology education. Their study revealed that the majority of graduate respondents preferred a 6-month internship training program as required by CMO No. 14 s. 2006. On the other hand, the chief medical technologists preferred the longer 1-year training program. The study concluded that a shorter 6-month internship still allows for the achievement of the objectives of the internship program to a moderate extent, but achieved nonetheless.

Under this part of the gathered data, the respondents were given the option to write their own answer through a type-in, short answer format if their answer in mind was not well-reflected in the given choices. And out of the 366 respondents of the study, only 3 respondents opted to use the aforementioned format. 2 of the 3 respondents that answered using their own words stated that, according to their personal opinion, the length of their internship has nothing to do with their performance in the board exam. These 2 respondents came from the group that have undergone a 1-year internship program. This may be analyzed in relation to the data gathered and presented in Table no. 7 Distribution of Select Respondents based on the Length of Internship and their Rating in the 2019 MTLE. In Table no. 7, it was observed that there were respondents from both lengths of internship that obtained a high rating or performed above

average in the 2019 MTLE. It just so happened that in this study, the collected data resulted in a very weak negative significant correlation between the length of internship and board exam performance due to the used sampling method and the uncontrolled, uneven distribution of respondents in terms of whether they have undergone a 6-month internship or a 1-year internship program. This may be supported by the studies of Valdez, et al. (2012) and Valdez, et al. (2013), which concluded that medical technology interns can still produce excellent board performance outcomes despite undergoing a shorter length of internship. However, 1 of the 3 respondents that answered using their own words stated that their 6-month internship program was somewhat adequate in terms of preparing him/her for the board exam and that he/she wished that their internship program was longer than 6 months. This verbalization goes against the resulting quantitative data which states that there is a significant, very weak negative, indirectly proportional relationship between the study variables, opening the need to further discuss and investigate the association between the length of internship and board exam performance. Again, it is to be noted that the results and conclusions arrived by the proponents are only applicable to the 366 respondents of the study and are not to be used as a generalization for the whole population of the passers of the 2019 MTLE.

V. CONCLUSION

Based on the results of the study and the computed p-value (p-value = 0.001531), the study was able to establish the association between the length of internship and the 2019 Medical Technology Board Exam performance, thereby, rejecting the null hypothesis and accepting the alternative hypothesis (p-value < 0.05). Taking into account that the association is based only on the 366 respondents that participated in the study, the level of correlation based on the computed rho value (rho coefficient = -0.1650562) denotes a very weak negative association (rho coefficient = -0.19 to -0.01). This resulting correlation, caused by the limitations during the data gathering, indicates an indirectly proportional relationship between the study variables. Hence, based on the data collected from the 366 respondents who participated in the study, board passers with shorter internship duration revealed to have higher scores compared to board passers with longer internship duration. The very weak negative indirect correlation of the study variables is considered significant as the computed p-value is less than 0.05, essentially implying the presence of a significant association between the length of internship and the 2019 Medical Technology Board Exam performance of the 366 passers of the 2019 MTLE.

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