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Performace Assessment of Medical Technologist Overseeing Medical Technology Interns in Select Tertiary Hospitals

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ABSTRACT

The research attempts to explore the possibility of using the University's Student Assessment of Teacher Performance in a clinical setting which is currently used for classroom assessment only. The study sought to determine the performance Clinical Instructors in terms of communication, learning environment, assessment, student engagement, instructional delivery and personal attributes. Assessing the performance of the Medical Technologists is a key for tailoring specific interventions aimed at improving the overall impact of an internship program. A survey was developed to assess these factors among 35 Medical Technologists in the select tertiary hospitals where the Medical Technology interns of Liceo de Cagayan University were deployed. Results show that personal attributes and communication were rated excellent followed by learning environment, instructional delivery, and student engagement rated as very good by the interns. The lowest rating falls on assessment with a verbal description of good. There is no significant difference in the performance of clinical instructors when grouped according to age, gender, and length of service. The findings reveal that the SATP of Liceo de Cagayan University which is classroom based can be used as an assessment tool for the Medical Technologists but with minor revision to include the actual clinical setting. It can also be used for developing specific strategies for human resource management in particular targeting professional development, aiming at improving laboratory professional within Cagayan de Oro Laboratories.

Keywords: Performance assessment, Medical technologists, Interns, Clinical instructors

INTRODUCTION

Bachelor of Science in Medical Technology/Bachelor in Medical Laboratory Science is a four year program consisting of general education subjects and professional subjects. The second semester of the fourth year level is the internship program of six (6) months in an accredited training laboratory. It is an intensive practical and theoretical training in the different sections in the clinical laboratory namely, Clinical Chemistry, Hematology, Microbiology, Immunohematology (Blood Banking), Immunology and Serology, Urinalysis and other Body Fluids (Clinical Microscopy), Parasitology, Histopathologic/Cytologic Techniques and other emergent technologies. It also emphasizes the development of proper value system. The main objective of the internship is to allow students to gain necessary knowledge and skills in each discipline. During the training, two important features are emphasized: accuracy of results and speed of performance or mastery of procedural techniques.

According to the Guidelines for Medical Technology Internship Program, the Medical Laboratory/Medical Laboratory Science Internship Training Program is a global academic enterprise, recognized not only in the Philippines, but throughout the world as demonstrated by the students, patients, employers, professionals and the public. It will be the standard by which schools measure their performance in terms of Medical Technology/Medical Laboratory Science internship training of students. Its hallmark will be competence, teamwork, and initiative of the students and their ability to respond to patient care in a health care delivery system (Medical Technology Laws in the Philippines, 2011).

In Education, Medical technologists are involved in designing, conducting, and evaluating education programs. Most medical technologist assignments include some teaching responsibilities; these may involve classroom teaching and/or on-the-job demonstration and laboratory practice. The instruction may be given to medical technologist students, medical technicians, physician residents and/or others. Typically, these duties are in integral part of the basic assignment and do not affect the grade level or the qualifications required for the position. Some medical technologists have education or training work as a primary responsibility (e.g., coordinating the laboratory rotation of students from colleges or universities with which the hospital/laboratory is affiliated, or teaching full time in an accredited program).

Clinical instruction is a set of planned experiences designed to help students to acquire skills, attitudes, and knowledge by participating in the work setting. Although the acquisition of skills is typically what comes to mind when the term “clinical instruction” is used, it involves more than just teaching the technical aspects of motor skills. In addition, clinical instructors teach attitudes by role modeling as well as help

students relate classroom teaching to clinical practice.

However, clinical teaching effectiveness is difficult to be evaluated in diverse, often fast-paced and highly complex clinical settings compared to more controlled environments such as seminars, laboratories and classrooms for theoretical teachings. Most researches on effectiveness of clinical instructors have compared students and faculty perceptions of effective clinical teachers. Though students and faculty differ on their views of most and least important characteristics of effective clinical instructors, overall they agree that the best clinical teachers should have sound interpersonal skills, good at providing feedback, clinically competent and know how to teach effectively.

The Liceo de Cagayan University College of Medical Laboratory Science for the past eight (8) years has already deployed five (5) batches of interns in select Tertiary Hospitals and the Philippine National Red Cross in Cagayan de Oro City. These interns have been under the supervision of the Medical Laboratory Technologists who also served as their Clinical Instructors in the actual clinical setting. The performance of interns were regularly evaluated, but no evaluation has been conducted yet with regards to the performance of these Clinical Instructors; hence, the need to conduct this study.

FRAMEWORK

The study was anchored on the following concepts and principles:

The University Teacher Evaluation Philosophy

The University believes that teacher quality determines student quality. Anchored on the University's commitment to the student's total human formation, through the core values of excellence, integrity, loyalty and discipline, the teacher evaluation scheme is integral in ensuring its accountability to deliver quality education through the professional development of teachers.

Drawing from its Philosophy, the evaluation shall be guided by the principles in its actions, judgments and decisions and ensures that the same are all done in the best interests of the students and supports optimum student learning.

Through this study, the researcher aimed to assess the performance of the Medical Technologists who served as Clinical Instructors of the Medical Laboratory Science Interns in the select tertiary hospitals in Cagayan de Oro City employing the University's Student Assessment of Teacher Performance. The LDCU teacher Evaluation Scheme covers the following standards: Communication, Learning environment, Assessment, Student engagement, Instructional Planning and Delivery, and Personal attributes.

The following statements articulate the standards of performance that a teaching faculty is expected to render to promote the Licean culture as stated in the vision and mission of the University:

Communication. The faculty demonstrates effective communication skills. The behaviors that the Clinical Instructors' may or may not display in this standard are the following: uses a clear and understandable language in teaching, speaks with a well-modulated voice and listens attentively to students' concerns.

Learning Environment. The teacher facilitates effective learning environment. The behaviors are: maintains student-friendly atmosphere that encourages learning, praises positive behavior, and interacts with students professionally and courteously.

Assessment. The faculty continuously assesses progress, analyzes the results, and adapts instruction to improve student performance. The teacher: provides the students with a regular feedback on their performance, give instructions clearly, shows fairness in rating students, explains the bases form computing grades, returns checked test papers on time, and give tests that are representative of the coverage of their lessons.

Student Engagement. The faculty causes the students to actively participate and be successful in the learning process. The behaviors that a teacher may or may not demonstrate are the following: uses appropriate teaching strategies, explains lessons clearly, relates lessons to real-life experiences, and sustains our interests in class.

Instructional Planning and Delivery. The faculty plans and makes sound instructional decisions that demonstrate deep understanding of the content, pedagogy and curriculum implementation. The teacher: shows mastery of the lesson, cites current information to supplement the lesson, and adopts available technology to enhance communication and learning.

Personal Attributes. The faculty possesses qualities, attitude and work ethics reflective of the University core values. The teacher behavior includes: uses appropriate words and actions, starts and ends class on time, maintains a wholesome relationship with students, is well-groomed in coming to class, and comes to class regularly.

Guidelines for Medical Technology Internship Program

As cited in the Guidelines for Medical Technology Internship Program, the Medical Technology/Clinical Laboratory Science Internship Training Program will be a global academic enterprise, recognized not only in the Philippines, but throughout the world as demonstrated by the students, patients, employers, professionals and the public. It will be the standard by which schools measure their performance in terms of Medical Technology/Clinical Laboratory Science internship training of students. Its hallmarks will be competence, teamwork, and initiative of the students and their ability to respond to patient care in a health care delivery system.

Article III of the Guidelines for Medical Technology Internship Program enumerated the following objectives of the program: (1) Enhance the knowledge, skills and attitudes needed for a member of the health care delivery team who with precision and accuracy performs the clinical laboratory procedures needed to help the physician in the proper diagnosis, treatment and prevention of diseases; (2) Develop among students a well-rounded personality with a healthy outlook and oriented towards intelligent, ethical and active participation in professional as well as community welfare activities; (3) Develop critical thinking skills that will enable them to participate in research endeavors/activities and respond to challenges of the profession; (4) Develop humane and competent Medical Technologists/Laboratory Scientists who are globally competitive, and committed to serve the health needs in both local and international communities (Medical Technology Laws in the Philippines, 2011).

The guidelines also included the following duties and responsibilities of the clinical instructors and coordinators in Article VI: (1) There shall be one (1) clinical instructor/interns' coordinator/clinical coordinator for every 25 students/ interns; (2) The Clinical Instructor/Intern Coordinator/Clinical Coordinator shall have the following duties/ responsibilities: a). acts as a liaison officer between the Higher Education Institution (HEI) and the accredited affiliating hospital-based or free-standing clinical laboratory; b). coordinates with the training officer and/or the chief medical technologist in the proper implementation of the internship training programs of both the HEI and the accredited training clinical laboratory in terms of: progressive evaluation of interns' attendance, behavior and performance on an official visit at least once a month; preparation and submission of monthly report on matters related to the proper implementation of the internship training program; and participation in the review, revision and updating of the internship training program; c). performs other related functions as maybe assigned by the Dean/Head of the HEI (Medical Technology Laws in the Philippines, 2011).

According to Madhavanprabhakaran *et al.* (2013), teacher's knowledge about the curriculum, clinical setting, the learner and teaching/learning theory appeared very important to students' views of effective clinical teaching. Clinical teachers with effective clinical teaching characteristics are always appreciated as good role models. Clinical supervision relates to day-to-day oversight of trainees in the workplace and is an activity that involves all clinicians that come into contact with trainees. Clinical supervision involves being available, looking over the shoulder of the trainee, teaching on-the-job with developmental conversations, regular feedback and the provision of a rapid response to issues as they arise. All trainees should have access to supervision at all times with the degree of supervision tailored to their competence,

confidence and experience. In many respects then, clinical supervision is a function of the training rather than resting with a single individual. However, within a given training placement, such supervision arrangements may be the responsibility of a nominated 'clinical supervisor'.

Educational supervision relates to the oversight of a trainee's progress over time. Educational supervisors are responsible for ensuring that trainees are making the necessary clinical and educational progress. Educational supervisors will need all the skills of clinical supervision, plus an appreciation of supporting educational theory, the ability to undertake appraisal, work with portfolios and provide careers advice. Managing the trainee in difficulty will also, inevitably involve the educational supervisor with support from deanery training structures. Educational supervisors are responsible for producing a report for the Annual Review of Competence Progression (ARCP) panel.

Clinical education is a form of experiential learning. It is active learning by doing. Brown (n.d.) identifies 3 stages of experiential learning. In the early stage, students concentrate on learning technical skills. As they perfect their skills, the emphasis turns to learning how to function as a professional by observing how other professionals perform in their roles and by developing values and attitudes associated with the professional role. Clinical supervision in this professional context "addresses three categories of functions: normative (organizational responsibility, quality control), formative (development of skills and knowledge) and restorative (supporting personal well-being" (Lennox *et al.*, 2008).

Irby (2001) as cited by Brown (n.d.), identified the three key roles of clinical instructors. These are role modeling, clinical supervision and instructional leadership/ scholarship. He also emphasized that faculty should serve as role models and mentors to students. The role modeling process should be purposeful that demonstrate the knowledge, skills, attitudes and ethical behaviors that students should acquire and cherish throughout their professional life. The instructor's way of being is of paramount importance in the clinical setting because in that environment students become socialized to the profession and its values (Reilly & Oermann, 1992). The instructor models the same values and behaviors which he or she expects from the students to demonstrate (Brown, n.d.).

In addition, Clores (2014) also cited that one of the most important roles of the clinical instructor role is providing instruction to students, which is based on a course syllabus. With nursing concepts and theories being taught in nursing school, it is important that student nurses also know how to apply them in the clinical setting. That is where clinical instructors enter the scenario. Their job is to connect what students learn in school and aid them in real life application. Textbooks and other

written materials may be used, but the teaching strategies of CIs mostly rely on laboratory simulations and on-site rotations.

According to Brown (n.d.), one of the hardest parts of being a clinical instructor is to watch an awkward student perform a new skill and refrain from jumping in and taking over for the student. It can take an infinite amount of patience sometimes. "The instructor's need to teach must not be allowed to intrude on the student's need to learn" (O'Conner, 2001), and the only way to learn skills is by doing them (Brown, n.d.).

Valdez (2010) also emphasized that medical technology combines the challenges of medicine with medical knowledge. In the clinical setting, medical technologists perform and/or supervise the analytical testing of blood, body fluids, and other types of biological specimens. Moreover, they identify the presence of bacteria, fungi or parasites or prepare blood units for purposes of transfusion. Medical technologists are trained to use skills in critical thinking, problem solving, and situational analysis that arise in the clinical laboratory. They perform an important role in patient diagnosis and treatment (Valdez, 2010).

In this study, the researcher aimed to determine the performance of the Clinical Instructors of the Medical Laboratory Science students of Liceo de Cagayan University employing the University's standardized tool for faculty evaluation. Moreover, the study also would like to find out if there is a significant difference in the performance of the Clinical Instructors when grouped according to age, gender, and length of service.

OBJECTIVES OF THE STUDY

The study pursued the following objectives: (1) determine the profile of the clinical instructors in terms of age, gender, and length of service; (2) assess the performance of the Clinical Instructors in terms of Communication, Learning Environment, Assessment, Student Engagement, Instructional Delivery and Personal Attributes; and (3) test the significant difference in the Clinical Instructors' Performance when grouped according to age, gender, and length of service.

METHODOLOGY

The study utilized the descriptive research to come up with the necessary information appropriate for this study. This study was conducted at the Main Campus of Liceo de Cagayan University, College of Medical Laboratory Science located at R.N. Pelaez Boulevard Kauswagan road Cagayan de Oro City. The respondents of

the study were the Medical Technology Interns of Liceo de Cagayan University SY 2015-2016 and the Clinical Instructors were from select tertiary hospitals where the Interns are deployed for their Internship.

All scale items were pre-tested for construct validity. Respondents were asked to indicate their agreement with each item (statement), using a five-point Likert scale providing an interval level of measurement.

Respondents were assured that their names would not be disclosed and that confidentiality would be strictly maintained. In addition, respondents were also explicitly asked not to disclose their names on the Assessment tool, and were advised not to respond to any questions that they felt might reveal their identity. The researcher used frequency distribution, weighted mean, ANOVA, two sample tests in the analysis of data.

RESULTS AND DISCUSSION

A total of 35 Medical Technologists, who served as Clinical Instructors, were evaluated by the Medical Laboratory Science Student Interns of Liceo de Cagayan University. The frequency distribution of the Clinical Instructors according to demographics and work related variables is shown in Table 1.

Table 1. Clinical Instructors' Profile in terms of age, gender, and length of service

AGE	**FREQUENCY**	**PERCENTAGE**
20 - 29	20	57.14
30 - 39	5	14.29
40 - 49	5	14.29
50 - 59	3	8.57
60 - 69	2	5.71
Total	**35**	**100**
GENDER	**FREQUENCY**	**PERCENTAGE**
Female	22	62.86
Male	13	37.14
Total	**35**	**100**
LENGTH OF SERVICE	**FREQUENCY**	**PERCENTAGE**
3 years and less	20	57.14
4 -6	3	8.57
7 - 9	3	8.57
10 years and more	9	25.71
Total	**35**	**100**

As revealed on Table 1, majority of the participants is within the age bracket of 20-29 years old. Participants had a modal age of 26 years old, with the youngest laboratory professional rated being 21 years of age and the oldest 64 years of age. Moreover, a total of 62.89% (22/35) of participants were female and 37.14% (13/35) were male. The data suggest that there are more females than males working in the Laboratories and the ages are much younger.

Furthermore, in terms of length of service, majority (57.14%) of the participants had 3 years or less work experience in the Medical Laboratory field followed by 10 years and more which is 25.71%. Since majority of the respondents are younger, it also follows that most of them have been in the profession for only a few years.

Table 2. Interns' Assessment of Performance of Clinical Instructors

AREA	RATING	VERBAL INTERPRETATION
Communication	4.57	Excellent
Learning environment	4.42	Very Good
Assessment	3.37	Good
Student engagement	3.95	Very Good
Instructional delivery	4.07	Very Good
Personal attributes	4.71	Excellent
Over-all	**4.08**	**Very Good**

Table 2 shows the interns' assessment of performance of clinical instructors. As shown on the table, personal attributes and communication were rated highest having a verbal description of Excellent and a rating of 4.71 and 4.57 respectively. The next rated highest were the areas learning environment (4.42), instructional delivery (4.07) and student engagement (3.95), these were selected as very good by the students. Assessment earned the lowest rating (3.37) given by the student with a verbal description of good.

In a study conducted in Oman by Madhavanprabhakaran *et al.* (2013), clinical students rated "objective and fair evaluation", "clinical competence," "respecting students as an individual" and "communicative skills" as the most important characteristics. Role modeling characteristics were highly valued by nursing students. The study results allows faculty to understand students' views and provides opportunities for areas of success as well as areas needing improvement. Similarly, the results of the current study also reveal that students rated the communication

skills of their clinical instructors as excellent. It is important that clinical instructors have good communication skills since clinical supervision relates to day-to-day oversight of trainees in the workplace and is an activity that involves all clinicians that come into contact with trainees. Clinical supervision involves being available, looking over the shoulder of the trainee, teaching on-the-job with developmental conversations, regular feedback and the provision of a rapid response to issues as they arise (Madhavanprabhakaran *et al.*, 2013).

Furthermore, the study reveals that students' evaluation of their clinical instructors' assessment attribute was only good. According to Madhavanprabhakaran *et al.* (2013), assessment (evaluating students effectively) is the most important characteristic of a clinical instructor. However, in this study, it earned the lowest rating. This implies that interns could have perceived that their CIs were not that objective when they were being evaluated when it comes to their actual clinical practices.

Table 3. Analysis of Variance (ANOVA) to determine the significant difference in the performance of the Clinical Instructors when grouped according to age

Groups	Count	Average	Std. Dev.	F-value	F critical	P-value	Alpha	Decision	Interpretation
20 - 29	20	4.161	0.3909	1.961	2.690	0.126	0.050	Fail to reject Ho	No significant difference
30 - 39	5	4.169	0.3274						
40 - 49	5	4.157	0.5061						
50 - 59	3	3.810	0.7805						
60 - 69	2	3.340	0.4562						

Table 3 shows the Clinical Instructors' performance when grouped according to age. As shown on the table, F-value (1.961) is less than the F-critical value (2.690) and the P-value (0.126) is greater than the alpha value (0.050). Therefore, there is no significance on the Clinical Instructors' performance when grouped according to age. Hence, the null hypothesis is not rejected. This finding implies that regardless of age, all Clinical Instructors have the same performance.

The result of this study is in line with the statements of Dror *et al.* (1998) that age does not degrade the quality or the speed of decisions, in some way contradict the generalized opinion that working memory declines with age, thus limiting older peoples' capacity to monitor decision processes (Charness & Bieman-Copland, 1992; Craik & Salthouse, 1992).

Table 4. Test of difference of the Clinical Instructors' performance when grouped according to gender

Group	Mean	Std. Dev.	Observations	T-Value	t Critical	P-value	Alpha	Decision	Interpretation
Male	4.148	0.386	13	0.63	2.035	0.538	0.05	Fail Reject Ho	No significant difference
Female	4.046	0.386	22						

Table 4 shows the Clinical Instructors' performance when grouped according to gender. As shown on the table, T-value (0.63) is less than the T-critical (2.035) and P-value is greater than the alpha value. Therefore, there is no significant difference on the performance of the Clinical Instructors when grouped according to gender. Hence, null hypothesis is not rejected. This result is also supported by a slight difference in the mean scores of the Clinical Instructors performance to both genders. It further implies that in this study, the participants' gender does not influence their performance.

Similarly, many major reviews of student evaluations conclude that gender does not have a significant effect (Seldin, 1993; Marsh & Dunkin, 1992). However Basow (1995) provides sufficient data from the literature to show that many of these studies examines only the main effects. Gender varies with the gender of the student as well as the teacher, the gender typing of disciplines, status of the professor (e. g. tenured vs. nontenured), teaching styles, student year, student grade point average, student grade expectations, number of years teacher has taught, the hour the class is taught, student perceptions of the teachers speech, thought stimulation, non-repetition, and overall rating. The point that Basow makes is that for individual teachers, the results of the interaction of numerous variables, negligible alone, may be significant if the influences occur simultaneously. "Anyone using student evaluations should have a sophisticated understanding of how gender variables may operate in such ratings" (Basow, 1995).

Sanz de Acedo Lizárraga *et al.* (2007) also found out in their study that no sex differences were observed in cognition and self-regulation. That is, men and women both carefully process information, retrieve the relevant decision-related data from their memories, categorize the data if they are very diverse, think logically about the alternatives, predict results, evaluate the consequences, solve the problems posed by the situation, and monitor all the decision stages. To some extent, the equivalence in these intellectual aspects in the sample under study shows that sex differences are closer to behavioral styles or to the demands of men and women's social roles than to the intellectual competences or to capacities (Sanz de Acedo Lizárraga *et al.*, 2007).

Table 5. Analysis of Variance (ANOVA) to determine whether there are any significant differences between the means of length of service and the performance of the Clinical Instructors

Groups	Count	Average	Std. Dev.	F value	F critical	P-value	Alpha	Decision	Interpretation
3 years and less	20	4.174	0.4009	0.771	2.911	0.519	0.05	Fail to reject Ho	No significant difference
4 -6	3	4.146	0.3672						
7 - 9	3	3.952	0.1735						
10 years and more	9	3.908	0.6512						

Table 5 illustrates the Clinical Instructors' performance when grouped according to length of service. As shown on the table, F-value (0.771) is less than the F-critical value (2.911) and the P-value is greater than the alpha value (0.05). Therefore, the null hypothesis is accepted since there is no significant difference in the Clinical Instructors' performance when grouped according to length of service. This means that as evaluated by the interns, the Medical Technologists have the same performance regardless of their length of service.

CONCLUSIONS

Part of developing skills, knowledge, and proper attitudes of Medical Technology interns in Liceo de Cagayan University relies on the internship program, efficiency and competence of the Medical Technologists handling the interns in different laboratories. The process is both a challenge and necessity. Findings of the study showed that, there was no significant difference between age, gender, and length of service of the clinical instructors and the performance relative to communication, learning environment, assessment, student engagement, instructional delivery, and personal attributes. As the college produce more interns every year and to be assigned in different laboratories it can be told that the Medical technologists handling them were skillful and competent enough to handle interns. This showed on the "very good" rating of this research. According to Stevens (2005), Clinical instruction is a set of planned experiences designed to help students to acquire skills, attitudes, and knowledge by participating in the work setting. Although the acquisition of skills is typically what comes to mind when the term "clinical instruction" is used, it involves more than just teaching the technical aspects of motor skills. In addition, clinical instructors teach attitudes by role modeling as well as help students relate classroom teaching to clinical practice.

The theory offers guidance to the Medical Technologists in improving their

performance especially in the "assessment" that has a low rating. Thus, maintaining the excellent rating of personal attributes and communication is a challenge to all the Medical Technologists. The administrators in the laboratories are key players in maintaining the rating as excellent Medical Technologists help the total formation of the Licean Medical Technology Interns.

RECOMMENDATIONS

From the findings of the study, the following are recommended:

1. The Human Resource Management Center should develop programs on training the Medical Technologists to increase knowledge on being clinical instructors.
2. The administration should create a clinical instructor's development plan to upgrade them through higher level training related to handling interns.
3. A similar study be conducted to determine if there is significant relationship on the clinical instructors' performance and demographic profile
4. Conduct the study at wider perspective like involving more laboratories which cater to internship.
5. Those who will further conduct this particular topic must consider the use of different assessment tool fitted for clinical setting.

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