Correlation between the Laboratory Performance and the Internship Performance of Physical Therapy Students in one Private University in the Philippines

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Abstract - *The study aims to determine the correlation between the level of laboratory performance in the professional courses and the level of internship performance in different affiliated hospitals/centers of the physical therapy students. Descriptive-correlational type of research method was utilized in the study. Findings revealed that the laboratory performance of the Physical Therapy students was found significant with positive correlation in the internship performance. Students who perform well inside the classroom have also the possibility to perform better in the clinical education. Students' clinical performance improves as training experience increases. The skills acquired in the classroom were highly utilized in different affiliated hospitals/centers were they are deployed.*

Keywords: *laboratory performance, internship, clinical education, physical therapy*

INTRODUCTION

In today's changing educational system educators from higher education institutions (HEIs) should provide learning experiences that will lead to the attainment of the objectives of the curriculum. It is important that those experiences will develop the student's cognitive, psychomotor and affective domains. It is important that the education and training provided by the HEIs will address the academic reforms. It is crucial to close the gap between what is taught to students [1] and the expectation of the affiliated hospitals/centers where they are deployed.

Physical Therapy education comprises both academic and clinical activities designed to assure students acquire the necessary knowledge, attitudes, and skills required for physical therapy practice. In order to meet this objective, there must be an application, analysis, synthesis, and evaluation of content and skills learned in the classroom or laboratory in physical therapy clinical environments [2]. Using the CMO 24 series of 2006 [8], specific performances in the laboratory should be assessed. These include professional courses which are placed in 3rd year and 4th year levels. Professional courses include Intro to PT and Patient Care (PhyTher 1); Light Thermal Agents, & Hydrotherapy (PhyTher 2); Principles of Examination and Evaluation (PhyTher 3); Electrotherapy (PhyTher 4); Basic Therapeutic Exercises (Ther Ex 1); Therapeutic Exercises for Medical Conditions (Ther Ex 2); Therapeutic Exercises for Surgical, Neurologic and Developmental Pediatric Conditions (Ther Ex 3); Introduction to Clinics (Clin Ed 2); Introduction to Clinics 2 (Clin Ed 3); Kinesiology and Biomechanics (Ana 3); and finally, Orthotics and Prosthetics (Ortho & Prosthe). Students while inside the classroom during laboratory period should be given sufficient simulation activities that are similar to the actual practice of their chosen profession in order to enhance their skills and prepare the graduates for a successful career. Different assessment tools such as rubrics play an important role in determining student outcome. It can aid the students to become competitive in terms of output and healthcare services.

However, none of the rubrics can predict the success of student performance in the clinical area. In 2013, the faculty members of the College of Allied Medical Professions - Physical Therapy Program collaborated in formulating performance checklists based on the prescribed textbook and references in order to produce a standardized evaluation tools that will assesses the student's laboratory performance in

the professional courses. The laboratory performance of the LPU-B Physical Therapy students are typically evaluated using case evaluation rubric for case analysis and faculty-made checklists for skills application. Case analysis deals with synthesis of clinical knowledge on assessment and/or treatment in clinical cases. It tests the theoretical knowledge on PT assessment and/or treatment and it corresponds to 15% of the total score.

On the other hand, skills application conforms to the procedures on laboratory checklist and it is equivalent to 85% of the total score. It measures the technical skills on PT assessment and/or treatment, teaching, and ethical/professional behaviour. The thoroughness of the performance can be evaluated using checklist; the higher the score from the checklist items the higher the competency level of a skill. Although, it does not guaranteed what is being learned and practiced can improve practicum grades since checklist may also favour novice learners due to its stepwise approach which promote memorization of required skills such method of evaluation do not necessarily lead to greater reliability. According to Rheault and Shafernich-Coulson [3], student's grades may reflect how well they will perform ultimately in the clinic. If grades do indeed reflect clinical performance, then students who are in need of assistance for clinical skills can be identified early in their education, and remediation can be instituted.

As cited by Murphy, Dalton and Dawes [4] based on the study of Higgs[5], clinical education is defined as the supervised acquisition of professional skills. It challenges students to transform their theoretical classroom knowledge into professional practice knowledge, skills, and attitudes; it is during this workplace-based education that students' professional identities are developed and refined and their personal identities are challenged and extended. Physical Therapists are required to practice with professional competence in the clinical domain, independent decision-making and should engage in interprofessional collaboration since they are working with multifaceted healthcare system [6]. Clinical competence involves an array of skills, attitudes and academic knowledge [7]. Based on CMO 24 series of 2006 [8], the clinical internship of Physical Therapy students is divided into Internship 1 (from May until October) and Internship 2 (from November until March). The internship program shall be conducted during their fifth year and it involves assigning of students in different affiliation hospitals/centers that cater various client/patient populations. The chosen affiliation hospitals/centers of LPU include Philippine Orthopedic Center (POC), Jose R. Reyes Memorial Medical Center (JRMMC), Philippine Center for Sports Medicine (PCSM), Philippine Cerebral Palsy Incorporated (PCPI), and Daniel O. Mercado Medical Center (DMMC). During the course of their training, clinical exposure should include but not limited to the following cases: neurological, musculoskeletal, pulmonary, cardiovascular, integumentary, pediatric, geriatrics, and well-population. Furthermore, students are also required to have two (2) months of Community-Based Rehabilitation services. The required number of hours for BSPT is 1500 hours under the guidance of licensed Physical Therapist. Throughout the clinical training program, students are required to develop professional skills through a systematic application of scientific knowledge in actual scenarios. Student performances are regularly monitored in a monthly basis. According to Fitzgerald, Delitto, and Irrgang [9], evaluation tool for clinical performance should allow for comparison of student competence against predetermined standards of practice since they are expected to function as competent clinicians. Clinical performance evaluation systems should ensure broad, systematic sampling of clinical situations and require use of short instruments as suggested by Printen, Chappell and Whitney [10]. As cited by Ronai, Golmon, and Shanks [11], some of the research indicates low correlation between early academic performance and clinical performance. Hence, very few studies were conducted. However, according to Pickles [12], the relationship between didactic and clinical grades in the professional phase of the Physical Therapy program was high with positive correlation. This study was conducted to determine the application, analysis, synthesis and evaluation of student learning outcomes in laboratory classes using the existing performance checklist in preparation to their clinical internship in different affiliated hospitals/centers.

OBJECTIVES OF THE STUDY

This study aimed to determine the correlation between the laboratory performance and the internship performance of LPU-B Physical Therapy students from SY 2014 - 2016.

Specifically, this paper has the following objectives: to determine the level of laboratory performance of the students in the professional

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courses and to determine the level of internship performance in different affiliated hospitals/centers.

METHODS

Research Design

The researcher utilized the descriptive design of the study to determine the relationship between the laboratory performance of Physical Therapy students in the professional courses and the internship performance in different affiliated hospitals/centers.

Participants

A total of 27 participants were included in the study. These include the graduates from SY 2014 – 2016. Students were evaluated by a competent PT professor from LPU-B during their laboratory classes in professional courses and by a clinical supervisor and its staff from the hospital/center where they have undergone their internship training.

Instruments

The researcher utilized two (2) evaluation tools namely: case evaluation rubric and faculty-made performance checklists to measure and obtains the necessary information needed to evaluate the laboratory performance of the students. These instruments are standardized tools used by the professors both in demonstration and practical examination. The case evaluation rubric assesses the student's theoretical knowledge regarding screening, diagnosis, identification of patient's problem/s, formulation of short-term goal/s, and proper prescription of PT management. The highest score that can be obtained is 20 points while the lowest is 4 points. The faculty-made performance checklists quantify the skills application. The checklist has a performance criteria that is divided into four (4) rating scales from 0 (lowest score) to 3 (highest score). The score of 3 is given if the performance is proficient (error-free with high degree of skills), 2 if it is adequate (meet the set standards), 1 if it is insufficient (not enough to satisfy the standards), and 0 if it is absent (not evidently shown).

Each affiliated hospital/center has a distinct way of evaluating internship performance. The students were rated based on two (2) major factors namely: clinical performance and theoretical performance. Clinical performance was given a higher percentage (60-70%) and it evaluates the psychomotor and affective domain while theoretical performance (30-40%) measures the cognitive domain. Each factor has subsets of competencies which are different from one training institution to another.

Procedure

The researcher asked permission from the dean to access the data of the previous graduates from SY 2014 – 2016 regarding the laboratory performance in different professional courses together with the summary of grades in Internship 1 and Internship 2 from different affiliated hospitals/centers. The collected data were given to the statistician for data encoding and further analysis.

Data Analysis

All data were encoded, tallied and interpreted using different statistical tools. These include frequency distribution and percentage in order to interpret the performance of students. Pearson-Product Moment Correlation (Pearson-r) was used to test the significant relationship between the laboratory performance and internship performance. To further analyze the result, the data was treated using SPSS software with 0.05 alpha level.

RESULTS AND DISCUSSIONS

Table 1 shows the Student Laboratory Performance on selected Physical Therapy professional courses. Based on the table, majority of the students has a fair grade on the following laboratory performances: Phy Ther 1 (81.48%), Phy Ther 2 (81.48%), Phy Ther 3 (55.56%), Thera Ex 1 (66.67%), Thera Ex 2 (66.67%), Thera Ex 3 (48.15%), Ana 3 (55.56%), Ortho & Prosthe (51.85%), Clin Ed 2 (70.37%) , and lastly, Clin Ed 3 (59.26%). However, for Phy Ther 4 majority has a satisfactory grade (62.96%). Student's grades may reflect how well they will perform ultimately in the clinic [3]. However, the best predictor of clinical performance currently is unclear [13]. Laboratory performance serves as an actual view of the competency of the students in order for them to demonstrate certain application of what they have learned in theory.

The result implies that the competencies developed among students is insufficient since majority of the academic grades are fair (2.25 – 2.74). Students failed to demonstrate excellent performance as well as mastery of the required skills during laboratory classes despite the higher percentage (skills application) on the evaluation tools (checklists) used by the professors promote memorization of the procedures.

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Table 1. Student Laboratory Performance on Different Professional Courses (N=27)

Laboratory Courses	Academic Grades	Frequency	Percentage (%)
Phy Ther 1	Excellent	-	
	Very Satisfactory	-	
	Satisfactory	2	7.41 %
	Fair	22	81.48 %
	Poor	3	11.11 %
Phy Ther 2	Excellent	-	
	Very Satisfactory	-	
	Satisfactory	2	7.41 %
	Fair	22	81.48 %
	Poor	3	11.11 %
Phy Ther 3	Excellent	-	
	Very Satisfactory	-	
	Satisfactory	1	3.70 %
	Fair	15	55.56 %
	Poor	11	40.74 %
Phy Ther 4	Excellent	-	
	Very Satisfactory	-	
	Satisfactory	17	62.96 %
	Fair	10	37.04 %
	Poor		
Thera Ex 1	Excellent	-	
	Very Satisfactory	-	
	Satisfactory	4	14.81 %
	Fair	18	66.67 %
	Poor	5	18.52 %
Thera Ex 2	Excellent	-	
	Very Satisfactory	-	
	Satisfactory	8	29.63 %
	Fair	18	66.67 %
	Poor	1	3.70 %
Thera Ex3	Excellent	-	
	Very Satisfactory	-	
	Satisfactory	12	44.44 %
	Fair	13	48.15 %
	Poor	2	7.41 %
Ana 3	Excellent	-	
	Very Satisfactory	-	
	Satisfactory	3	11.11 %
	Fair	15	55.56 %
	Poor	9	33.33 %
Ortho & Prosthe	Excellent	-	
	Very Satisfactory	-	
	Satisfactory	-	
	Fair	14	51.85 %
	Poor	13	48.15 %
Clin Ed 2	Excellent	-	
	Very Satisfactory	-	
	Satisfactory	3	11.11 %
	Fair	19	70.37 %
	Poor	5	18.52 %
Clin Ed 3	Excellent	-	
	Very Satisfactory	-	
	Satisfactory	1	3.70 %
	Fair	16	59.26 %
	Poor	10	37.04 %

Legend: 1.00 – 1.25 =Excellent; 1.26 – 1.74 =Very Satisfactory; 1.75 – 2.24 = Satisfactory; 2.25 – 2.74 = Fair; 2.75 – 3.00 = Poor

Table 2. Student Internship Performance on Different Affiliated Hospitals/Centers (N=27)

Internship Training Program	Clinical Grades	Frequency	Percentage (%)
Internship 1	Excellent		
	Very Satisfactory		
	Satisfactory		
	Fair	9	33.33 %
	Poor	18	66.67 %
Internship 2	Excellent		
	Very Satisfactory		
	Satisfactory	4	14.82 %
	Fair	20	74.07 %
	Poor	3	11.11 %

Legend: 1.00 – 1.25 =Excellent; 1.26 – 1.74 =Very Satisfactory; 1.75 – 2.24 = Satisfactory; 2.25 – 2.74 = Fair; 2.75 – 3.00 = Poor

Based on the table 2, majority of the students has a poor clinical performance in Internship 1 and fair in Internship 2. Physical Therapy profession lacks accepted set of standards (criteria) and evaluation forms in the clinical education centers [2].

The result implies that majority of the students improve their clinical performance during the second internship training program because students already knows what are the expectations from them. Clinical experiences from the previous hospitals/centers were able to enhance their skills hence they become more competent physical therapist.

Table 3. Correlation between Laboratory Performance and Internship 1 Performance

Laboratory Performance	*r*-value	*p*-value
Phy Ther 1: Intro to PT and Patient Care	0.345	0.078
Phy Ther 2: Light, Thermal Agents and Hydrotherapy	0.528	0.005*
Ther Ex 1: Basic Therapeutic Exercises	0.543	0.003*
Phy Ther 3: Principles of Examination and Evaluation	0.142	0.481
Ana 3: Kinesiology and Biomechanics	0.536	0.004*
Ther Ex 2: Therapeutic Exercises for Medical Conditions	0.345	0.077
Phy Ther 4: Electrotherapy	0.637	0.000*
Clin Ed 2: Introduction to Clinics	0.598	0.001*
Thera EX 3: Therapeutic Exercises for Surgical, Neurologic and Developmental Pediatric Conditions	0.751	0.000*
Ortho & Prosthe: Orthotics and Prosthetics	0.714	0.000*
Clin Ed 3: Introduction to Clinics 2	0.468	0.14

Note: all statistical level of significant were set at p <0.05; all strength of linear relationship were set with the following ranges: at least 0.8 – very strong, 0.6 up to 0.79 – moderately strong, 0.3 to 0.5 fair, less than 0.3 poor.

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Based on the table, the computed r-values indicate moderately strong correlation on the following laboratory performances namely: Thera Ex 3, Ortho & Prosthe, and Phy Ther 4. In addition, Clin Ed 2, Ther Ex 1, Ana 3, Phy Ther 2, Clin Ed 3, Phy Ther 1, and Thera Ex 2 have fair correlation. However, Phy Ther 3 has poor correlation.

The resulted p-values on the following laboratory courses were found to be significant namely: Phy Ther 4, Thera Ex 3, Ortho & Prosthe, Clin Ed 2, Thera Ex 1, Ana 3, and Phy Ther 2. On the other hand, Thera Ex 2, Phy Ther 1, Clin Ed 3, and Phy Ther 3 were not significant.

The result implies that majority of the clients/patients handled during Internship 1 include neurologic and pediatric conditions based on patient monitoring sheets which requires extensive application of Thera Ex 3, Ortho & Prosthe, and Phy Ther 4.

Based on Table 4, the computed r-values indicate moderately strong correlation on the following laboratory performances namely: Phy Ther 4, Thera Ex 3, Ana 3, Ther Ex 1, Phy Ther 1, Clin Ed 3, and Ortho & Prosthe. Furthermore, Thera Ex 2, Phy Ther 3, Clin Ed 2, and Phy Ther 2 have fair correlation. All laboratory performances were found to be significant.

Table 4. Correlation between Laboratory Performance and Internship 2 Performance

Laboratory Performance	*r*-value	*p*-value
Phy Ther 1: Intro to PT and Patient Care	0.634 0.405	0.000* 0.036*
Phy Ther 2: Light, Thermal Agents and Hydrotherapy	0.673	0.000*
Ther Ex 1: Basic Therapeutic Exercises	0.547	0.003*
Phy Ther 3: Principles of Examination and Evaluation	0.695 0.596	0.000* 0.001*
Ana 3: Kinesiology and Biomechanics		
Ther Ex 2: Therapeutic Exercises for Medical Conditions	0.798 0.451	0.000* 0.018*
Phy Ther 4: Electrotherapy	0.708	0.000*
Clin Ed 2: Introduction to Clinics		
Thera EX 3: Therapeutic Exercises for Surgical, Neurologic and Developmental Pediatric Conditions	0.609	0.001*
Ortho & Prosthe: Orthotics and Prosthetics	0.616	0.001*
Clin Ed 3: Introduction to Clinics 2		

Note: all statistical level of significant were set at p <0.05; all strength of linear relationship were set with the following ranges: at least 0.8 – very strong, 0.6 up to 0.79 – moderately strong, 0.3 to 0.5 fair, less than 0.3 poor.

CONCLUSION AND RECOMMENDATIONS

The laboratory performance of the Physical Therapy students was found significant with positive correlation in the internship performance. Students who perform well inside the classroom have also the possibility to perform better in the clinical education. Students' clinical performance improves as training experience increases. The skills acquired in the classroom were highly utilized in different affiliated hospitals/centers were they are deployed. The objectives of the curriculum as well as the desired competencies were achieved.

The LPU-B Physical Therapy Program strongly recommends to conduct further studies on the following professional laboratory courses namely: Phy Ther 3, Thera Ex 2, Phy Ther 1, and Clin Ed 3 because it does not have significant relationship during Internship 1. Professors should implement Objective-Structured Clinical Evaluation (OSCE) in all laboratory courses to further enhance the student's theoretical knowledge, decision-making, critical thinking, communication skills, interpersonal skills, and psychomotor skills which are necessary to their future career. Further studies should also be conducted using other factors or variables in order to confirm the results of the study. The evaluation tools used by the different affiliated hospitals/centers to measure clinical performance of the students should be modified in order to have uniform set of standards, especially the contents and grading system in order to have reliable results.

REFERENCES

[1] Buted, D. R., Felicen, S. S., & Manzano, A. I. (2014). A Correlation Study between Student Performance in Food and Beverage Services Course and Internship in F&B Department of Hospitality Business. *International Journal of Academic Research in Business and Social Sciences*, *4*(6), 54.

[2] Barr, J. S., Gwyer, J., & Talmor, Z. (1982). Evaluation of clinical education centers in physical therapy. *Physical therapy*, *62*(6), 850-861.

[3] Rheault, W., & Shafernich-Coulson, E. (1988). Relationship between academic achievement and clinical performance in a physical therapy education program. *Physical therapy*, *68*(3), 378-380.

[4] Murphy, S., Dalton, M., & Dawes, D. (2014). Assessing Physical Therapy Students' Performance during Clinical Practice. *Physiotherapy Canada*, *66*(2), 169–176. http://doi.org/10.3138/ptc.2013-26

[5] Higgs J. Ways of knowing for clinical practice. In: Delany C, Molloy E, editors. Clinical education in

P-ISSN 2362-8022 | E-ISSN 2362-8030 | www.apjeas.apjmr.com

the health professions. Sydney: Elsevier Australia; 2009. pp. 25–37.

[6] Hayward, L. M., Black, L. L., Mostrom, E., Jensen, G. M., Ritzline, P. D., & Perkins, J. (2013). The first two years of practice: a longitudinal perspective on the learning and professional development of promising novice physical therapists. *Physical therapy*, *93*(3), 369-383.

[7] McGinnis ME: Admission predictors for pre-physical therapy majors. Phys Ther 64:55-58, 1984

[8] CMO 24 series of 2006, Policies, Standards and Guidelines for Physical Therapy and Occupational Therapy Education

[9] Fitzgerald, L. M., Delitto, A., & Irrgang, J. J. (2007). Validation of the clinical internship evaluation tool. *Physical therapy*, *87*(7), 844-860.

[10] Printen, K. J., Chappell, W., & Whitney, D. R. (1973). Clinical performance evaluation of junior medical students. *Academic Medicine*, *48*(4), 343-348.

[11] Ronai, A. K., Golmon, M. E., Shanks, C. A., Schafer, M. F., & Brunner, E. A. (1984). Relationship between past academic performance and results of specialty in-training examinations. *Academic Medicine*, *59*(4), 341-4.

[12] Pickles B. Correlations between matriculation entry requirements and performance in the diploma program in physical therapy program at the University of Alberta. Physiotherapy Canada 1977; 29: 249-253

[13] Balogun, J. A. (1988). Predictors of academic and clinical performance in a baccalaureate physical therapy program. *Physical Therapy*, *68*(2), 238-242.

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