

## Application for Program Review and Assessment Committee (PRAC) Grants for IUPUI

### Name/Rank of Project Directors

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### Project Title

Translating Classroom Knowledge to Entry-Level Clinical Practice Using an Integrated Longitudinal Case-Based Learning Model

### Project Dates

January 2014-January 2015

### Abstract

The Indiana University Department of Physical Therapy educational research team has an ongoing line of investigation exploring the effects of the Integrative Longitudinal Case-Based Learning (ILCBL) model on teaching and learning outcomes. Phases I and II were supported by PRAC grants and showed the model enhances student learning within courses, retention of material across the curriculum, and improved faculty collaboration. This grant will support Phase III to assess student learning outcomes when the ILCBL is incorporated into the use of complex case studies and integrated cumulative practical

applications. Outcomes will focus on assessing whether this model translates classroom learning into better student preparedness for clinical practice.

### **Project Checklist**

Statement of support from department chair

Simple budget

IRB approval (submitted)

### Purpose

The central purpose of our faculty's educational research team's ongoing line of investigation is to assess teaching and learning outcomes of the Integrative Longitudinal Case-Based Learning (ILCBL) model, which was developed by the Indiana University Physical Therapy (IU PT) Department faculty. Phases I and II of this project were supported by PRAC grants in 2010 and 2012, respectively. Phase I resulted in the development of the learning tool, The IU DPT Case Family, which enhanced students' critical thinking and problem-solving within individual courses across a single semester. Phase II funded the development and assessment of the ILCBL model. Results from this work indicated that the ILCBL model facilitated retention of material learned across the curriculum and fostered improved faculty collaboration. The primary purpose of Phase III is to determine the impact of this model on student learning using complex case studies and integrated cumulative practical exams. A primary outcome of these strategies will be the improved student preparedness for entry-level clinical practice.

The ILCBL model incorporates the benefits of progressive case study formats and integrative family dynamics through the use of a text, The IU Doctor of Physical Therapy (DPT) Family Tree: An Integrated Case Series (IU DPT Family Tree), which was co-created by IU DPT faculty and students in 2007. In 2010, the IU DPT Family Tree evolved from 37 to 44 inter-related cases spanning 4 generations in its second edition. The ILCLB model is designed to create an evolving case complexity that will challenge student critical thinking and problem solving.

The comprehensive paradigm of ILCBL has been underway for approximately 5 years and is now an integral component of the PT program's educational conceptual framework . Funding from this grant will be used to support Phase III of this project. In Phase III, the ILCBL model will be used to assess the impact of complex case design on student academic integration. The cases are implemented in the final academic semester of the curriculum and feature specific problems requiring integration of learned material. In addition, Phase III will investigate the impact of the ICBL case studies used during a comprehensive practical examination. The goal is to foster better overall student clinical preparedness which will be a primary outcome assessment for the project. Funding will also be used to hire a student worker to help coordinate cases, analyze data and assist in the preparation of presentations and manuscripts.

#### Intended Outcomes

Our initial investigations resulted in a journal article, "An Integrative, Longitudinal Case-Based Learning Model as a Curriculum Strategy to Enhance Teaching and Learning," co-authored by all project directors and published in the Journal of Physical Therapy Education in spring of 2011. The work was recognized by the journal with an award for the article with the most impact during that year. The research team has made several competitive, peer-reviewed publications on a national, regional and local level on ILCBL outcomes. Furthermore, the Case Family learning tool has been requested by and shared with 12 other academic institutions to develop the ILCBL within their curricula. The intent of the current research project (Phase III) is to determine the impact of this model on student learning through complex case studies and integrated cumulative practical exams and to assess translation of student learning from the classroom to entry-level clinical practice.

### Assessment Methods

Quantitative and qualitative methodology will be utilized in this research project. Quantitative data will be gathered by analyzing student group documentation of specific clinical indicators related to examination and intervention techniques for complex patient case scenarios. Cases will be selected, developed and integrated across the curriculum; culminating into complex case designs involving multiple co-morbidities in the P660 Selected Topics course. This is an advanced course offered semester one, year three of the PT curriculum just prior to the students' final clinical rotations. Also, following clinical rotations throughout the curriculum, qualitative data will be gathered from student focus group discussions, surveys and online discussion after students' clinical rotations program to assess translation of learning from the classroom to the clinic. Other cases will be developed for use in integrated, comprehensive lab practical exams. These are cumulative exams coordinated between courses to test students' comprehensive knowledge and skills performance of material learned that semester. Exam results and student surveys will be used to assess the effectiveness of this method. Finally, clinical preceptors will be surveyed to assess student preparedness for clinical practice.

### Data Analysis

Grading rubrics will be used to assess achievement of learning objectives through analysis of student group work surrounding complex ILCBL cases by comparing their clinical decisions to an ideal response for examination and treatment. Likert scale data will be assessed for faculty, clinical faculty and student surveys on the impact of this teaching and learning model for complex case analysis, comprehensive, cumulative lab practical exams and student preparedness for clinical practice.

### Evaluation and Dissemination

Preliminary findings have been positive for the use of IU DPT Family Tree and ILCBL model for teaching and learning. Results of research project Phase III are intended for dissemination in educational journal publications and conference presentations impacting educational practices and for program assessment.

### Intended Use of Findings for Program Improvement

Phase III research project outcomes will be used for ongoing investigation of the ILCBL model. Findings will be used to develop additional applications of the model towards higher levels of critical thinking and clinical decision making. Results will also be used as part of a comprehensive program assessment plan. Prospective applications of the ILCBL model include using it as a means to foster interprofessional education (IPE). IPE leading to interprofessional practice has been shown to improve patient outcomes and is the future direction of healthcare. If used for IPE purposes, the ILCBL model would support our campus missions by offering a strategy for teaching and learning that requires collaboration of faculty and students from several health and life science disciplines with the ultimate goal of improving the healthcare related quality of life in our community.

### Proposed Budget

This PRAC grant will support sustained and collaborative implementation of the ILCBL. Financial support will be used for complex case development, integrated cumulative practicals design and dissemination of outcomes.

Budget Item	Proposed Cost	Total (\$2500)	Rationale
Student worker	\$10/hr x 100 hrs (2hr/wk x 50 wks)	\$1000	Data entry and analysis, assisting manuscript and presentation development
Copies and Supplies	\$200	\$200	Distributing copies of developed cases and surveys
Stipend	\$800	\$800	Summer support of primary researchers for project development and outcomes analysis
Dissemination of findings	\$500	\$500	Support for poster development, publications and presentations