

Curriculum Assessment Employing the Continuous Quality Improvement Model in Post-Certification Graduate Athletic Training Education Programs

Jennifer C. Teeters, Michelle A. Cleary, Jennifer L. Doherty-Restrepo, Michelle L. Odai
Florida International University, Miami, FL

Objective: We investigated the Continuous Quality Improvement (CQI) model as a paradigm for evaluation of a Post-Certification Graduate Athletic Training Education Program (PC-GATEP). **Design and Setting:** Students were asked to complete a summative assessment of their perceptions of learning outcome achievement, evaluation methods, available resources, and program outcomes for each course and the overall PC-GATEP. **Participants:** Twelve students enrolled in a PC-GATEP participated. First year ($n = 5$) students completed 4 Core Course Surveys. Second year ($n = 7$) students completed 9 Core Course Surveys and both completed 1 Overall PC-GATEP Survey. **Measurements:** Course syllabi and stated program outcomes were used to create 10 Core Curriculum Course Surveys and one Overall PC-GATEP Survey. Likert scale (1= Strongly Disagree; 2= Disagree; 3= Agree; 4= Strongly Agree; and N/A= Not Applicable) and open responses were obtained. Descriptive statistics were calculated for data analysis. **Results:** Means and standard deviations revealed that in all curriculum courses students agreed that: the learning outcomes were achieved (3.2 ± 0.2); evaluation methods (3.0 ± 0.10) and resources (3.2 ± 0.2) were adequate and fair to achieving the learning outcomes; and core courses required by the PC-GATEP assisted students in achieving the program outcomes (3.1 ± 0.2). Overall, students agreed that the PC-GATEP provided them with skills beyond that of an entry-level certified athletic trainer (3.1 ± 0.6). **Conclusions:** This facet of CQI is commonly referred to as “closing the loop” and ensures that programs use assessment data to improve student learning, the ultimate purpose of program assessment. Our findings support the use of the CQI model as an appropriate paradigm for assessment and improvement of a PC-GATEP. **Key Words:** Total Quality Management, accreditation, and higher education

Accountability in academe is increasingly demanding effective documentation of student learning and assessment of projected outcomes. Internal and external pressures for student enrollment and continuous improvement in higher education have underscored the need for mechanisms/processes to measure and document student learning.¹ Assessment of student learning occurs at numerous levels including the individual student, courses, program, and college/university. Accreditation of post-professional athletic training education programs serves as a mechanism that measures and documents student learning therefore ensuring quality and accountability of the institution and program.

Program assessment is a comprehensive, systematic evaluation that should be reasonable considering faculty and program resources.² The cornerstones of program assessment are the missions of the institution and the individual program which, in effective programs, complement each other. For effective program evaluation, athletic training faculty must identify the desired student learning outcomes for the education program and subsequently identify measures that provide data regarding students' knowledge, skills, and abilities related to these outcomes. Assessment does not end with the data collection process. The process is cyclic, involving a

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continuous loop with data being collected, analyzed, and trended to identify if changes are needed in the athletic training education program. The data may identify additional areas that need to be assessed or suggest changes in the tools to obtain more accurate data. The assessment plan and process should be fluid and dynamic with trended data providing an outlook of the program over a period of time. These data are most useful during program review and accreditation processes² and provide evidence that may be used to enhance the quality of educational experiences for students.

The purpose of this study was to report findings of the use of the continuous quality improvement (CQI) model as a paradigm for evaluation of learning outcomes of a post-certification graduate athletic training education program (PC-GATEP) preparing for the accreditation process.

Methods

Research Design

We used a descriptive approach to report the findings of implementing our program assessment instruments to evaluate a PC-GATEP. The program is a two-year, 36 credit hour program consisting of nine core courses, which were evaluated in the current study, and nine electives. Two primary instruments were utilized. The Curriculum Course Evaluations included items about meeting learning outcomes for the required PC-GATEP courses. To maintain reliability, all questions were identical in three of the four domains. The fourth domain consisted of questions regarding learning outcomes adapted based on the syllabus for each course. The Overall PC-GATEP Survey included items to assess the ability of the PC-GATEP to achieve the program outcomes (Table 1). We administered the instruments to students enrolled in the PC-GATEP at the time of the investigation and tabulated the findings to be used in program evaluation for the purposes of program improvement and accreditation. First year students who had completed one semester of coursework at the time of the investigation were administered four Curriculum Course Evaluations and the Overall PC-GATEP Survey. Second year students were administered nine Curriculum Course Evaluations and the Overall PC-GATEP Survey.

Participants

A purposeful sample of 12 students currently-enrolled the PC-GATEP participated in the study: five first-year students in their first semester of study and seven second-year students in their third semester of study. Response rates for each instrument are provided in Table 2. Compliance was achieved by incorporating the study into a normal class time. All participants signed an informed consent form prior to beginning the study which was approved by the FIU Institutional Review Board.

Instruments

We developed two instruments adapted from the program assessment surveys from The College of Mount St. Joseph Athletic Training Program student course assessment³ to accommodate a PC-GATEP. The instruments were created and administered using Microsoft[®] Share Point software (Microsoft, Inc. Seattle, WA), which is a secure internet website that collects and exports data to a spreadsheet for analysis. The Likert scale consisted of the corresponding responses: 1= Strongly Disagree; 2= Disagree; 3= Agree; 4= Strongly Agree; and N/A= Not Applicable. Neutral was not included to force a response from the participant or N/A would be indicated. Prior to conducting the study, the instruments underwent qualitative reviews with feedback provided by a panel consisting of an Athletic Training Education Graduate Program Director, Director of Clinical Education, Director of Entry-Level Graduate Athletic Training Program, and three athletic training doctoral students. Upon completion of the

qualitative review, ambiguous or confusing items were identified and adjusted accordingly to the panel's suggestions.

Curriculum Course Evaluations. Ten Curriculum Course Evaluations were created for the required PC-GATEP course to ascertain the students' perceptions of achieved learning outcomes as well as the perceived strengths and problem areas within each course. The instruments were developed based upon the course syllabi to accurately adapt each question to the learning outcomes listed on the syllabi. Survey questions were separated into one of four domains: Learning Outcomes, Evaluation Methods, Resources, and Program Outcomes.

Overall PC-GATEP Survey. The Overall PC-GATEP Survey was created to examine the students' perceptions of the program achieving the overall goals and objectives based upon the Standards and Guidelines as outlined by the National Athletic Trainers' Association Post-Professional Education Committee (NATA-PPEC).

Experimental Procedures

Participants arrived during normal class time reserved. With the course instructor absent to avoid bias, the primary investigator explained the objectives, procedures, risks, and benefits of the study. Potential participants were instructed to read the instructions before signing the informed consent form and participants were separated into two rooms based on class year. Each student was seated at an individual desktop computer connected to the internet with a browser open to the evaluation instrument website. Only navigational type questions were answered by the administrator. No talking was permitted during the response time. Participants had an unlimited amount of time to complete each evaluation and were permitted to leave upon completion. Total time required of each participant was 1.5 hr.

Statistical Analysis

Data reduction consisted of calculating means and standard deviations as a single score for the Overall PC-GATEP Survey and for each of the four domains for all Curriculum Course Evaluations. Since responses were whole numbers (no decimal response), questions with responses below a mean of 2.9 were identified as "disagreed" and responses above 3.0 were rounded up and identified as "agreed".

Results

Data reduced from the Overall PC-GATEP Survey indicated that students agreed ($3.1 \pm .6$) that the PC-GATEP provided students with the skills beyond that of an entry-level Certified Athletic Trainer. Examination of the means and standard deviations from the Curriculum Course Evaluations indicated that in all courses students agreed that the learning outcomes listed on the course syllabi were achieved ($3.2 \pm .2$), that the evaluation methods (i.e. assignments, time required) of the courses were adequate and fair for achieving the learning outcomes listed on the syllabi ($3.0 \pm .1$), that the resources in the course or department were sufficient to achieve the learning outcomes listed on the course syllabi ($3.2 \pm .2$), and that the courses required by the PC-GATEP assist them in achieving the program outcomes ($3.1 \pm .2$). Table 2 displays the individual course responses to the Curriculum Course Evaluations.

Discussion

The purpose of this investigation was to evaluate student perceptions of the achievement of course and program learning outcomes for accreditation. The sample was small, purposeful, and non-random sample that may limit generalization of the results. Non-compliance was identified in 2 of the 10 Curriculum Course Evaluations. Additionally participant bias of course instructors may have influenced positive or negative responses to the surveys.

The assessment was designed to identify areas of strength and areas in need of improvement relating to course content, resource availability, and ability of the program to produce advanced skills for the Certified Athletic Trainer. Overall, the responses to the evaluation were positive and indicated that students do consider the individual courses and the program to achieve the learning outcomes.

Courses that scored the highest in the Curriculum Course Evaluations were courses that students perceived as the introduction of new material or advanced practitioner skills. The objectives of these courses were to present material in structured formats and consisted of traditional lectures, assignments, tests, and grading scales. These high scoring components also included a laboratory component allowing students to gain hands-on, interactive experiences. Students commented on strengths of each course. Examples of students comments cited in the higher scoring courses included: “The laboratory provided an opportunity to dissect a human cadaver and explore first hand what things really look like” and “we learned application which is necessary for the profession.” The high scoring courses demonstrated a trend toward high scores in the Learning and Program Outcomes domains, but lower scores in the Resources and Evaluation domains. Students perceived the courses as successful in achieving Learning Outcomes and ultimately contributed to the achievement of the PC-GATEP Program Outcomes.

Courses that scored the lowest on the Curriculum Course Evaluations were courses that presented material in an unstructured format. This unstructured format may have confused students’ perception relating to advanced practitioner skills as being irrelevant discussions. Furthermore, the courses may have scored low due to amount of credit earned related to the volume of class assignments given to students. Both factors may have been the cause of low total mean scores. The Resources domain on all Curriculum Course Evaluations revealed that the required and suggested textbooks were underutilized and unhelpful in facilitating understanding of the course content. These findings suggest the courses with mean responses less than 3.0 did not achieve the learning outcomes as set forth on the course syllabi and did not equip the students with the skills necessary to achieve the program outcomes. These courses will require the Program Director to focus his/her attention on making required text changes for the future.

Further analysis of questions in each survey may be compared to the NATA-PPEC Standards and Guidelines⁴ to address the problem areas of the PC-GATEP. The cyclic (continuous loop) process of program evaluation requires continuous data collection, analysis, and synthesis to identify changes that are needed in the athletic training education program.

Table 1. Example of Questions in the Curriculum Course Evaluations and Overall PC-GATEP Satisfaction Survey

Sample Questions

Curriculum Course Evaluation

- LEARNING OUTCOMES – The course presented the latest information dealing with the educational and clinical foundations of Athletic Training.
- LEARNING OUTCOMES - I increased my knowledge of upper-extremity orthopedic special tests.
- LEARNING OUTCOMES - The course facilitated the scholarly writing process through the use of research groups and peer review.

Overall PC-GATEP Satisfaction Survey

- The program encouraged the development of my interpersonal skills.

- The program provided me with ample opportunity to apply my research skills
- The research experience provides students with in-depth knowledge, skills, and practices beyond those of an entry-level ATC.

Table 2. Mean responses to individual Curriculum Course Evaluations

Course	N	Response
Advanced Orthopedic and Biomechanical Assessment of the Upper-Extremity	6	3.5 ± 2
Clinical Anatomy of the Trunk and Limbs	12	3.3 ± 1
Human Performance in Extreme Environments	7	3.3 ± 3
Foundations of Educational Research	5	3.0 ± 3
Survey of Research (Interdisciplinary Inquiry I)	7	3.2 ± 2
Survey of Research (Interdisciplinary Inquiry II)	7	3.1 ± 1
Athletic Training/ Sports Medicine Seminar I	12	2.9 ± 1
Athletic Training/ Sports Medicine Seminar II	7	3.0 ± 2
Masters of Science Research Seminar I	12	3.0 ± 2
Masters of Science Research Seminar II	6	2.9 ± 1

Note. Likert scale consisted of the corresponding responses: 1= Strongly Disagree; 2= Disagree; 3= Agree; 4= Strongly Agree; and N/A= Not Applicable.

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