

# Clinic-as-Classroom Program: Preparing Students for the Transition to Clinical Placements

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## ABSTRACT

**Background:** Clinical placements are invaluable for preparing students for their professional role and assisting the transition to practice. In order to thrive, it is the responsibility of universities to ensure students are prepared. The aim of this study was to examine the student response to learning within a university clinic-as-classroom educational program, for building self-perceived confidence to perform the competencies of clinical exercise physiology practice, prior to their first clinical placement. A secondary aim was to identify any learning areas that required further emphasis within the curriculum.

**Methods:** This study was a prospective cohort study, assessing the change in confidence of 80 final year exercise physiology students to perform the competency of practice.

**Results:** The study achieved an 87% response rate. Baseline data indicated students were confident to behave professionally, be reflective, work in teams, adapt to practice setting, ensure a safe exercise environment, and manage personal risk. Across the clinic-as-classroom program students reported a significant growth in confidence in 4 elements of competency: communication of data; placing the clinical exercise physiologist's role in the wider healthcare context; designing client centered exercise interventions; and integrating pathology into the program planning and delivery.

**Conclusion:** The clinic-as-classroom educational program allowed novice students to become increasingly confident in the clinical environment in a low-risk, authentic, and supportive learning environment. A key recommendation was to embed the additional elements of clinical exercise physiology practice across the course and clinic-as-classroom curriculum to increase student preparedness for placement. *Journal of Clinical Exercise Physiology*. 2020;9(4):142–147.

**Keywords:** professional competence, clinical exercise physiology, work integrated learning, self-confidence

## INTRODUCTION

The goals of higher education courses in clinical exercise physiology are to produce work ready professionals who meet the competency standards for real world practice. In Australia, these standards are based on national accreditation standards and developed across curriculum and placement. Placements remain an invaluable resource in preparing students for the reality of their professional role, supporting the integration of theory and practice as they transition to

real world settings (1,2). However, common student concerns while on placement include feeling generally unprepared and anxious when placed in a new learning environment with responsibility for performing tasks with real clients (3,4). When anxiety is high an individual's capacity for learning is impeded (5).

To thrive on placement, students need to be prepared to successfully apply their knowledge and skill within the workplace, respond to unpredictable situations, and respond to the needs of clients while demonstrating growth in

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competency through reflective practice (6,7). With this preparation in mind, the research team integrated a clinic-as-classroom educational program into the final year curriculum at Queensland University of Technology. This provided students with an opportunity to participate in a supportive and authentic teaching and learning environment prior to their first placement.

Of interest was the extent to which the university clinic-as-classroom educational program prepared the students for their placement, focusing on self-perceived confidence to perform the key competencies of clinical exercise physiology practice. Self-confidence has been reported as being a key component for effective clinical performance, an important aspect of learning to be a practitioner, with confident students more likely to be effective practitioners (8,9). On this premise, the research team investigated student confidence to perform the core competencies of clinical exercise physiology practice. This knowledge is important for the university to ensure student readiness and warranted further investigation.

The aim of this study was to examine the response of clinical exercise physiology students to a transition to practice-clinic-as-classroom program on self-perceived confidence to perform the competencies of practice. A second aim of the study was to identify any gaps in curriculum that required further emphasis in order to support students' readiness for placement.

## METHOD

### Study Design

This study was a prospective descriptive cohort study designed to provide insight into the student learning experience of being involved in a clinic-as-classroom program delivered immediately before students commenced their first clinical placement. Baseline and postprogram time-points were used to obtain survey data from the cohort to measure the change in confidence to perform the tasks required for practice.

### Participants

Eighty undergraduate clinical exercise physiology students were invited to participate in the study. Eligible students were enrolled in the clinic-as-classroom units and invited to participate through an announcement (information sheet) and provision of a survey link on the learning management system. Ethics approval was granted through QUT Human Research Ethics Committee (#170000804) and active participation in the survey formulated implied consent.

### Clinic-as-Classroom Program

The educational setting was a University Health Clinic, tasked with providing health care service delivery and the training and supervision of undergraduate students. The clinic-as-classroom was an educational program designed to progress each student through the process of managing and delivering a service to a client. It was a capstone experience that was completed in the first half of the semester, prior to

transitioning to their first clinical placement. The educational program was underpinned by a constructivist learning theory whereby the students created their own understanding of delivering a healthcare service, building on the knowledge gained across the course, while applying and being mentored to adapt this understanding to an authentic clinical environment. The learning outcomes of the clinic-as-classroom program were for students to be able to justify, demonstrate, and integrate effective health services for their patient. The program began with the allocation of a student practitioner to a client and the performance of a client consultation. It then progressed through the performance of a client assessment, and the codevelopment of an exercise and client management plan using clinical judgement and a client reassessment.

This 6-week teaching and learning intensive was facilitated by clinical instructors through a guided process in lectures (4 h) and tutorials (2 h), followed by an opportunity to apply the learning with twice-weekly practical sessions with the client (4 h). Important to the process was the provision of actionable and timely feedback that fostered student development within a safe and supportive environment. Any student having difficulties with any element of practice was able to debrief and seek assistance through their clinical facilitator.

### Questionnaire

To assess the student learning experience, a questionnaire was developed based on an existing set of clinical exercise physiology clinical learning competencies (1). The clinical learning competencies were expressed as 6 units of competency, under which there were 19 elements. The competencies described essential attributes for safe and effective practice as an entry-level exercise physiologist (Table 1).

The questionnaire assessed students' perceived confidence to perform each element. The questionnaire used a 4-point Likert scale (0 to 4) to assess student confidence: ranging from very confident (4 = expert), confident (3 = entry level), somewhat confident (2 = developing), through to lack of confidence (1 = novice). The overarching question was: How confident do you feel at the current moment in time to complete the following clinical exercise physiology tasks as an independent practitioner within a clinical exercise physiology clinic? The first time point was baseline, prior to commencing the clinic-as-classroom intensive units, and the second was at completion of the clinic-as-classroom program, aligning to the entry point for placement.

### Data Analysis

Each item response was entered into SPSS (v19; IBM Corporation, Armonk, New York) for analysis. Data was analyzed using frequencies and summary statistics to describe the participants' evaluation of their confidence levels regarding each competency item. A series of comparative *t* test analyses were conducted to compare presurvey and postsurvey responses.

TABLE 1. Clinical learning competencies (1).

Unit of Competency	Element
Communication	1.1 Communicates effectively with clients, carers, & general public
	1.2 Communicates effectively with peers, colleagues, other health professionals
	1.3 Effectively communicates EP data and management plans via oral & written reports or progress notes
Professionalism	2.1 Behaves in a professional manner
	2.2 Demonstrates reflective practice and a commitment to learning
	2.3 Works effectively in a team environment
	2.4 Able to adapt to the practice setting
Assessment & Interpretation	3.1 Places the role of the clinical EP in the wider context of client's health care management
	3.2 Accurately and efficiently collects subjective and objective data
	3.3 Accurately interprets assessment data
Exercise Delivery	4.1 Designs safe and effective client-centered interventions
	4.2 Facilitates the delivery of a safe and effective client-centered intervention
	4.3 Integrates pathology into the planning and delivery of interventions
Lifestyle Modification	5.1 Recognizes and addresses key elements of lifestyle modification in client communication and assessment
	5.2 Facilitates behavior change and self-management with clients
Risk Management	6.1 Takes an active approach to client safety
	6.2 Ensures a safe exercise environment
	6.3 Employs sound clinical reasoning to assessment and intervention decisions that are grounded in risk management
	6.4 Self-manages personal risk

EP = exercise physiologist

## RESULTS

Seventy-three clinical exercise physiology students completed the questionnaires across 2 time points, providing an 87% response rate. Baseline data indicated, on average, students were confident (rating  $\geq 3$ ) to behave professionally, be reflective, work in team environments, adapt to the practice setting, ensure a safe and effective exercise environment for the client and manage personal risk. Post program, *t* tests revealed that 4 of the items had a significant association ( $P < 0.05$ ) for increases in confidence to effectively communicate clinical exercise physiology data and management plans via written or oral reports; place the role of clinical exercise physiology in the wider context of the client's health care management; design safe and effective client-centered exercise interventions; and integrate pathology into the planning and delivery of exercise interventions. The following provides the results within each competency evaluated.

### Area 1: Communication

Results (Figure 1) indicated a significant growth in confidence to effectively communicate clinical exercise physiology data and management plans via written or oral reports (2.2 to 2.6;  $P < 0.010$ ), a small but insignificant change in confidence to communicate with a real client and caregivers (2.8 to 3.1;  $P < 0.130$ ) and no change in confidence to communicate effectively with their peers, colleagues and other health professions (2.9 to 2.9;  $P < 0.970$ ).

### Area 2: Professionalism

There was a significant improvement in confidence to place the role of the clinical exercise physiologist in the wider context of the client's health care management (2.6 to 2.9;  $P < 0.025$ ). However, no significant change was reported in confidence to demonstrate reflective practice and a commitment to learning (3.2 to 3.2;  $P < 0.682$ ), to work effectively in a team environment (3.4 to 3.4;  $P < 0.835$ ), to behave in a professional manner (3.4 to 3.5;  $P < 0.499$ ) or to adapt to the practice setting (3.1 to 3.2;  $P < 0.075$ ).

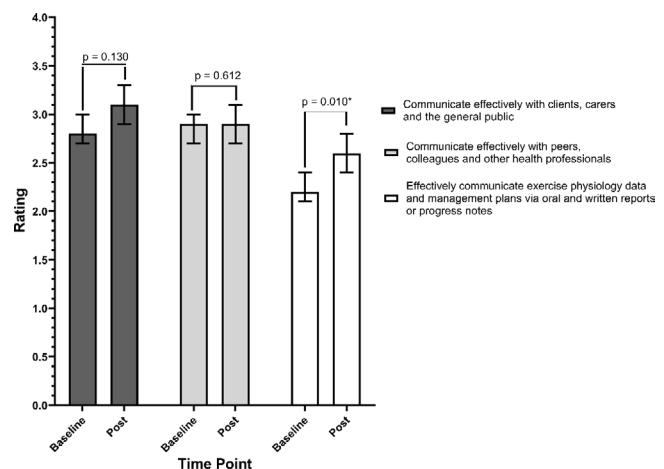


FIGURE 1. Change in confidence to effectively communicate with others.

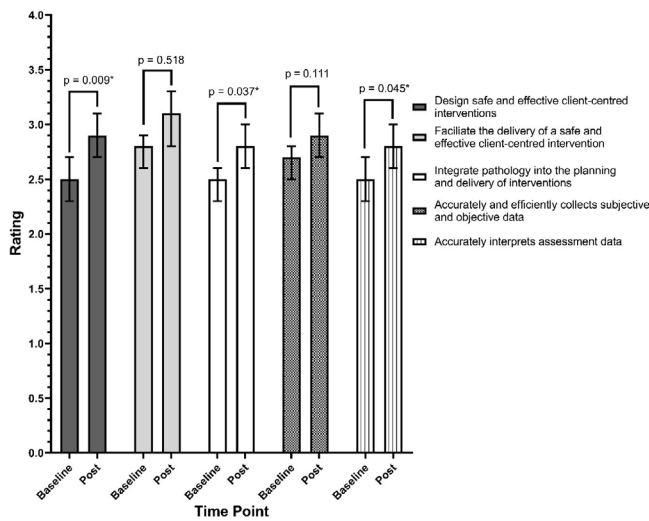


FIGURE 2. Change in student confidence to design and deliver exercise to a client based on needs, and to assess and interpret clients' data.

### Area 3: Assessment and Interpretation

Small but nonsignificant increases in the student confidence to efficiently collect subjective and objective data (2.7 to 2.9;  $P < 0.111$ ) and accurately interpret client data (2.5 to 2.8;  $P < 0.045$ ) were reported (Figure 2).

### Area 4: Exercise Delivery Competency

There was a significant increase in confidence to design safe and effective client centered interventions was noted (2.5 to 2.9;  $P < 0.009$ ) and to integrate pathology into the planning and delivery of the exercise interventions (2.5 to 2.8;  $P < 0.037$ ). This was accompanied by a small, but non-significant difference to facilitate the delivery of a safe and effective client centered intervention (2.8 to 3.1;  $P < 0.518$ ; Figure 2).

### Area 5: Lifestyle Modification

No change in the student confidence to recognize and address the key elements of lifestyle modification in response to client communication or assessment data (2.8 to 2.9;  $P < 0.113$ ) or to facilitate behavior change and instigate client self-management (2.6 to 2.6;  $P < 0.286$ ) were noted.

### Area 6: Risk Management

The students' self-confidence to take an active approach to client safety (3.4 to 3.5;  $P < 0.715$ ), ensure a safe exercise environment (3.2 to 3.4;  $P < 0.364$ ), employ sound clinical reasoning skills that are grounded in risk management (2.8 to 3.4;  $P < 0.134$ ) and manage own risk (3.1 to 3.2;  $P < 0.330$ ) showed an improving direction, but did not attain statistical significance.

Students' self-perceived confidence to perform the key competencies of clinical exercise physiology practice were averaged across all competencies (Figure 3). The overall results illustrate a decrease in those who rated themselves "limited" and "somewhat confident," and a

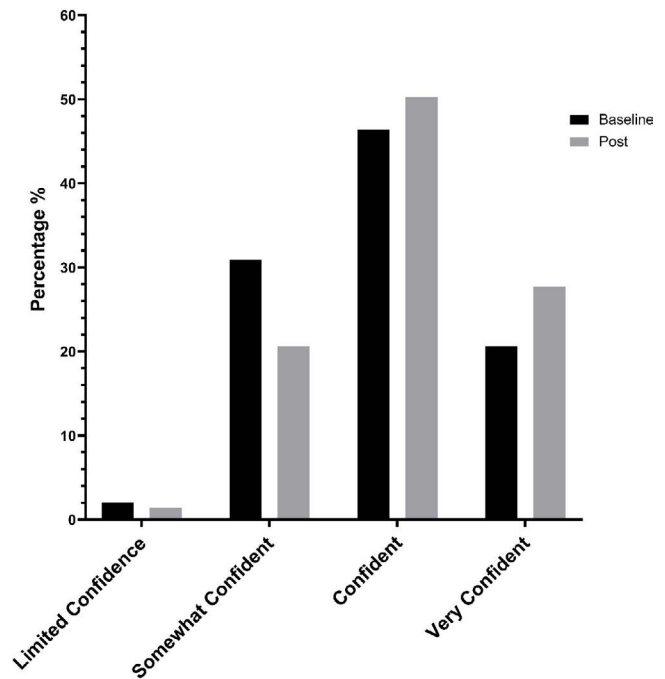


FIGURE 3. Overall change in student confidence to perform the key tasks of clinical exercise physiology practice.

corresponding increase in those who were "confident" and "very confident."

## DISCUSSION

The pathway to becoming an independent practitioner is underpinned with the transition to practice. To bridge the divide between theory and practice, this study sought to integrate a clinic-as-classroom program, to support the transition from the classroom to the clinical environment. Students' confidence to perform the competencies of practice increased across the teaching and learning period, but not uniformly across the elements of practice.

The teaching and learning activities occurred within the Health Clinic and utilized real patients to assist the students to develop competency prior to commencing their first clinical placement. Students practiced the roles of a clinical exercise physiologist under the supervision of a clinical instructor in order to be more prepared for the unpredictability and challenge that can occur in the real world. A supportive clinical learning environment was pivotal, with research suggesting that a supportive clinical environment provides important learning opportunities for students in terms of transitional practice, enabling improvement in clinical skills, ability to see patient progression, increased confidence and professional identity and socialization (10–12). Additionally, supportive student learning is a pivotal component of a student transition and preparation for practice (13,14).

Communicating patient data and management plans to others in verbal and written reports, grew in confidence across the clinics-as-classroom program. By assigning a real patient to each student, students had frequent opportunities to communicate with their assigned client, build rapport, and

grow their confidence. It was the first time in the curriculum where students were able to practice and consolidate their communication skills with a real patient. However, there was room for improvement in communicating more broadly with other health professionals. Recommendations from this finding would be to encourage students to practice communicating the outcomes of their patients' progress across the program with their peers and write a report for a referring physician on the patient progress. Consideration of the broader healthcare team is also an important element of clinical education and would assist students to develop their interprofessional communication skills prior to transitioning to placement (15).

Developing professionalism is a core expectation of health professional education which requires defining, learning, and assessing a set of values, behaviors and relationships that underpin trust the public has in the profession (16). A capacity to engage in reflective practice; demonstrates a commitment to learning; being able to work effectively in a team environment; and demonstrate an ability to adapt to the practice setting was evident at the start of the fourth academic year, but did not change across the clinic-as-classroom program. It would be beneficial to embed regular reflective practice opportunities for students to reflect on their performance. As the learning allocated a single patient to each student, students were not required to operate within a team environment within the placement site.

These findings highlight the importance of designing learning experiences that address all competencies of practice and further highlight gaps that require focus within the curriculum.

For health and fitness assessment and interpretation, the clinic-as-classroom program prompted a small, insignificant growth in confidence. By assigning individual patients, there was ample opportunity to collect and interpret real client data that would inform the exercise management plans. In contrast, there was little growth in confidence to facilitate behavior change in their clients and warrants more focus within future iterations of the unit, as behavior change is a fundamental element in empowering clients to take control of improving their health.

Students performed well in the risk management competency, growing in confidence to consider the patient's safety, provide a safe exercise environment, consider risk reduction when making clinical decisions, and consider their own safety. An important aspect of an introductory clinic-as-classroom program was allowing novice students to become comfortable in the clinical environment in a supportive learning environment. This curriculum was designed to enable them to become familiar with the professional competencies, linked to opportunities to practice the tasks across an entire patient journey, while standardizing the learning experiences to ensure all students had practiced the essential elements of practice prior to their first placement.

In response to the second research question, the outcomes from this study showed that the clinic-as-classroom program offered supportive, real world experience when

compared to the traditional teaching and learning curriculum; however, there was room for curriculum redesign to ensure more comprehensive student readiness for their first placement. Our findings highlight the importance of designing learning experiences that address all competencies of practice and provide insight into the student's perception of preparedness for placement. To improve the clinic-as-classroom educational program, the following are recommended; have students:

- i) communicate the outcomes of their patients' progress across the program weekly with their peers, including clinical reasoning and critical reflection,
- ii) write a report for a referring physician at completion of the program,
- iii) include interprofessional practice and consider the opportunities for inclusion of a broader healthcare team,
- iv) work with the client to establish health and fitness goals and behavioral strategies to achieve the goals, and
- v) work in small tutorial teams to discuss and plan complex case scenario's where ideas are shared and built upon, expanding knowledge and shared clinical thought.

It might be expected that improvements in student confidence could be linked to improvements in competence, although other researchers have cautioned about the lack of a direct relationship between confidence and competence (17). There may also be many external factors that influence students' perceptions of confidence and preparedness for practice. Further research is recommended to identify causes of poor self-confidence in fourth-year students. Recommendations for future work are to move beyond self-reported confidence as an evaluative measure of the effectiveness of clinic-as-classroom program. Using the Kirkpatrick Model (18), some additional measures could include: patient feedback (reaction), assessment that captures student reflection across the educational program (learning), student survey post placement to determine if the student felt prepared while on placement (behavior), supervisor evaluations that assesses placement readiness (behavior), and growth across the placement (results).

Another confounder which may have impacted student growth in confidence is prior experience in voluntary opportunities or previous study. It may be important for future iterations of this type of study to document previous experience. Additionally, the surveys were not coded for individual students, thus excluding the opportunity to explore individual confidence levels in a pretest/posttest design and identify any at-risk students who may require additional teaching support. This study also presented findings from a single university and it may be of interest to curriculum development nationally to compare confidence of students from universities with and without University Health Clinics.

## CONCLUSION

This study provided insight into the student's perception of preparedness for placement and contributes to the ongoing process of evaluation and improvement in the clinical

exercise physiology curriculum and clinical education more broadly. To ensure students enter clinical placement confident to practice safely and effectively, universities have a responsibility to prepare all students for placement. This clinic-as-classroom program demonstrated that universities can fulfill their responsibility to ensure students have developed basic competencies prior to transition to placement. An important aspect was that it enabled novice students to become more confident to perform core clinical skills in a supportive clinical environment prior to embarking on

placement. This study provides important information regarding the value of a clinic-as-classroom approach, integrated into the final year curriculum, for supporting students to transition from classroom learning to the clinical practice setting. Thus, a recommendation is a transition unit of this type for all clinical courses. By incorporating a real world, supported learning environment, students can learn to process, evaluate, and apply their knowledge more effectively and build confidence to competently practice as a professional.

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