Running Head: The Role of Peer-Facilitated Reflection

The role of peer-facilitated reflection in critical incident analysis amongst physical therapist assistant students

Thesis submitted in accordance with the requirements of the University of Liverpool for the degree of Doctor of Education by Irwin Scott Thompson

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Abstract

The role of peer-facilitated reflection in critical incident analysis amongst physical therapist assistant students

Irwin Scott Thompson

This research examines the role that peer-facilitated reflection (PFR) plays in influencing the abilities of physical therapist assistant (PTA) students to cope with critical incidents in their academic and clinical coursework. Physical therapist assistants are expected to possess well-developed critical thinking abilities upon graduation that will guide them through professional practice. Several scholars contend that critical thinking abilities should be developed within the curriculum, and that they are best cultivated through reflective practice. However, traditional modes of curricular-based reflective practice have come under scrutiny, revealing shortcomings in their efficacy. These include: a theory-practice gap, ineffective facilitation, and deficient models of assessment. Consequently, a model of PFR was proposed as a more utile reflective approach to develop critical thinking amongst PTA students. An interpretivist investigation was carried out through an action research methodology using Flanagan's critical incident technique, which favors reflection and planning based upon a significant event. Peer-reflective discussions were implemented into the curriculum of a PTA program. Student participants collectively reflected and developed action plans to put into practice. Data gleaned from post-discussion interviews and questionnaires was examined in light of the criticisms levied against reflective practice and was used to determine the effectiveness of the PFR approach. Findings indicated that students viewed PFR positively, and that they felt the discussion helped them cope with challenges confronted in their academic program. Observational analysis revealed challenges with facilitating reflective discussions, such as having faculty present and keeping discussions focused. Ameliorating steps were implemented for subsequent

discussions that removed faculty from the reflective process and that trained students to effectively lead their own discussions. An assessment model was adapted for this study that examined outcomes based upon the students' own assessments. Though still in its development, it offers promise as a means for faculty and students to interpret the efficacy of reflective approaches. Finally, study findings informed practice recommendations for the implementation of pedagogical PFR in an academic PTA program. These include affording flexibility for discussion topics, conducting student-led discussions, managing discussion frequency and group composition, and encouraging faculty participation.

Keywords: Reflective practice, peer-facilitated reflection, critical thinking, physical therapy, physical therapist assistant, action research, critical incident analysis

Statement of Original Authorship

The work contained in this thesis has not been previously submitted to meet requirements for any other award or credit at this or any institution of higher education. To the best of my knowledge, the thesis is wholly original and all material or writing published or written by others and contained herein has been duly referenced and credited.

Signature: IST

4 April, 2018

Contents

Boxes, Figures, and Tables

1 Introduction

The physical therapist assistant (PTA) is a semi-autonomous healthcare practitioner who plays an instrumental role in the physical rehabilitation of patients following injury or illness. The PTA administers treatments within a plan of care established by a supervising physical therapist, and is an integral component of the healthcare team (American Physical Therapy Association, 2015). Though job satisfaction is rated highly (Ellis, Connell, & Ellis-Hill, 1998; Speakman, Pleasant, & Sutton, 1996), the professional work of those in the physical therapy field is rife with unique difficulties that can be troublesome to the clinician. These include: demanding productivity expectations (Hayhurst, 2015), continuing knowledge and competency requirements (Physical Therapy Board of California, 2015), interpersonal issues with patients or colleagues (Plack, 2006; Thomas, 2014), overwhelming workload (Sliwinski, et al., 2014), and continually evolving healthcare policies (Blau, et al., 2002; Ciavarella, 2012; Jette, 2012). Any of these challenges can be problematic, and may lead to excessive strain amongst clinicians (Campo, Weiser, & Koenig, 2009).

New clinicians, in particular, tend to struggle more with professional stresses as compared to experienced clinicians (Solomon & Miller, 2005). Didactic and clinical coursework prepare healthcare students with the requisite cognitive and psychomotor skills to perform their jobs upon graduation. However, when confronted with challenging situations in the workplace, new graduates overwhelmingly report ill-preparedness in addressing such concerns, often leading to anxiety and distress (Solomon & Miller, 2005). These situations have been described as 'critical incidents,' a term first coined by Flanagan (1954), which are characterized as significant events that the individual might identify as being important, and that may elicit emotional responses. If not addressed effectively, critical incidents can compromise worker performance (Solomon & Miller, 2005).

The ability to cope with such circumstances seems to be one of preparedness, and the onus, contend Wainwright, Shepard, Harman, and Stephens (2010), is for educational programs to better equip their graduates for the challenges of professional practice by teaching over and above content knowledge. It is an issue that extends beyond its effects on new graduates, as it has the potential to impact patient care. Healthcare professionals who are unable to mitigate the stresses of the work environment may offer poor quality care or may be more susceptible to practice mistakes (Berger & Fisher, 2003). Thus, health education programs are faced with considerable responsibility. As a professional working in this area, this responsibility forms the basis of the thesis.

1.1 The physical therapist assistant student

Physical therapist assistants are licensed practitioners who typically undergo two years of academic training that includes both didactic classroom and clinical education, culminating in an associate degree (Commission on Accreditation in Physical Therapy Education, 2016). As the department chair for the PTA program at Sacramento City College, I have witnessed students struggle to negotiate the academic difficulties they encounter. Though contextually different from workplace challenges, the underlying themes are consistent. Physical therapist assistant students are expected to possess high levels of knowledge and skills commensurate with the expectations of the discipline, and they must produce considerable amounts of work for their courses. Content is presented quickly and can be overwhelming. Interpersonal issues often arise amongst classmates or between students and faculty. Expectations evolve from course to course throughout the program, demanding adroitness to keep ahead academically. Many a 'good' student has wilted under the intense pressures of the program, unable to cope when unexpected adversity arises. When students do encounter troublesome situations, they often resort to habitual ways of coping. Such approaches, coined as 'theories-in-use' by Argyris (2003), are basically mental maps or defense mechanisms upon which the individual relies. They support assumptions and practices that the person finds comfortable, yet they tend to be ineffective since they are geared toward self-affirmation instead of problem solving. To be successful, the PTA student must

possess the ability to critically think when confronted with incidents, and to appropriately develop meaningful responses in the face of those events. Perhaps unsurprisingly, this does not come easily to many students (O'Dell, Mai, Thiele, Priest, & Salamon, 2009).

Though the literature reveals no data on how PTA students cope with academic challenges, a few authors have examined how physical therapy students and those new to the profession confront difficulties. Wainwright, et al. (2010), in a study that compared the reflective abilities of seasoned versus novice physical therapists, noted that newer physical therapists struggle to use critical thinking in their clinical decision-making processes, relying more on recalled information to guide their actions. Clouder (2000a) similarly found that PT students, though able to effectively administer treatments based upon validated protocols, were less successful treating patients when having to think on their feet. Clouder discovered that students tended to rely on propositional (rote) knowledge, as opposed to critical thinking, to guide action. Greenfield, et al. (2015) confirmed these opinions, stressing that PT students use epistemic, or technical and rational, knowledge to guide decisions, as they are not yet skilled in incorporating phronetic, or in-action, knowledge into their practice. A reliance on basic 'book-smarts' or rote memorization skills is insufficient.

Development of critical thinking ability demands a practice and maturation process. The supposition is that PT or PTA students will operate toward the novice end of the Dreyfus model of adult skill acquisition; characterized by adherence to rules or established formats (Dreyfus, 2004). It is perhaps unrealistic to expect students to possess knowledge and skills associated with proficiency and expertise; those which demonstrate situational discrimination, action planning, and intuitiveness (Dreyfus, 2004). However, it should, and generally is, the aim of PT and PTA academic programs to prepare students toward proficiency and expertise, and not to assume that those skills will develop once graduates have a few years of clinical practice under their belts. Consequently, both PT and PTA programs are tasked with preparing graduates who possess the knowledge and skills commensurate with entry level practice; that which requires proficiency (Commission on Accreditation in Physical Therapy Education,

2016). Such ends demand an approach that is removed from traditional pedagogical models.

It is a generally held belief within academia that reflective practice is best suited to help students overcome habitual ways of coping and to develop critical thinking skills (Choy & Oo, 2012; Raterink, 2016; Wallace & Jefferson, 2015). Reflective practice is widely accepted within healthcare education (Sandars, 2009), and it appears in many guises, most commonly as journaling, portfolio-writing, and mentor-facilitated reflection. Evidence suggests that despite the popularity of these methods, their effectiveness at generating meaningful outcomes for students is limited. Furthermore, criticisms reveal significant theory-practice gaps, poor faculty facilitation, and ineffective assessment of reflection (Beauchamp, 2014). Consequently, an alternate practice model is needed; one that addresses and overcomes these criticisms. This study describes and tests such a model.

1.2 Research focus and purpose

The focus of this study examines the professional experience of the PTA, who has been neglected in the literature. This is likely due to most PTA programs being offered at community, junior, or technical colleges (Commission on Accreditation in Physical Therapy Education, 2017), where external reporting, rather than evidence-based research, assumes primacy with institutional investigation (Morest, Jenkins, & Columbia University, 2007). In response to the dearth of informative literature, and based upon my personal observations, I chose to explore how best to utilize reflection to enhance the critical thinking abilities, and, consequently, the coping mechanisms of PTA students.

Recognizing the need for better student preparedness and the inadequacy of traditional reflective practices, this research endeavored to assess the efficacy of a less commonly utilized mode of reflective practice: peer-facilitated reflection. It examined this model within the context of reflective practice shortcomings, endeavoring to determine if and how PFR addresses criticisms identified in the literature. Moreover, the research

investigated the feasibility of incorporating PFR into an academic PTA program. Ultimately, the aim was to implement data-driven pedagogical changes that would better prepare PTA students for professional work upon graduation.

1.3 Research approach

Physical therapist assistant students participated in reflective discussions with classmates to enhance their abilities to cope with the challenges, or the critical incidents, they face during their academic training. Students collectively analyzed shared critical incidents and developed action plans they could put into use when confronted with future troubling experiences. Data analysis examined PFR within the context of reflective practice criticisms, and it shed light on PFR as a viable alternative to more commonly appropriated reflective practices. Furthermore, operational aspects of implementing PFR into a PTA curriculum were assessed.

1.4 Research significance

This research contributes a solution to a practical problem: that of the new PTA graduate who is inadequately prepared to cope with the myriad challenges encountered in professional work. It does so by assessing a less-widely utilized approach to reflective practice: PFR. The study examines the issue as a curricular concern, and it subsequently sets the stage for improvements to curricular practice. Recommendations for the implementation of pedagogical PFR are offered. Furthermore, this research expands the breadth of reflective practice enquiry. Though similar studies in medicine and nursing education have been undertaken (Graham, 1995; Murray, Levy, Lord, & McLaren., 2011; Schluter, Seaton, & Chaboyer, 2008; Tsang, 2011a), no such research has been conducted within the context of a PTA program.

1.5 Study outline

The thesis contains nine chapters. Chapter 1 has already situated the problem that PTA students are inadequately prepared to cope with professional difficulties upon

graduation. It has delineated the purpose, structure, and significance of this research. Chapter 2 more deeply explores the literature, and it exposes the research problem as one that is ameliorated through the cultivation of critical thinking abilities that can be developed via reflective practice. Chapter 3 identifies criticisms of reflective practice found in the professional literature. It subsequently argues for the implementation of PFR as a means to counter those criticisms and to develop student critical thinking abilities. Chapter 4 discusses the theoretical underpinnings of the research methodologies - critical incident analysis within an action research methodology - and makes a case for their utilization. Chapter 5 outlines the study design and steps taken during data collection and analysis, as well as addressing key ethical concerns. Chapters 6 and 7 present findings gleaned from observations, interviews, and questionnaires from two separate reflective practice cycles. Discoveries from each cycle are analyzed and inform subsequent iterations of reflective practice. In chapter 8, the research questions are answered, and study limitations are identified. Chapter 9 is the conclusion, where an evaluative reflection is undertaken, recommendations for the implementation of PFR are offered, and an agenda for future research is suggested.

1.6 Definitions

The terms 'physical therapy' and 'physiotherapy' and the terms 'physical therapist' and 'physiotherapist' are synonymous. The abbreviation 'PT' interchangeably refers to both physical therapists and physical therapy. The terms 'critical incident' and 'significant event' are used interchangeably throughout this thesis. 'Critical incident' is the form most adopted in the professional literature, whereas 'significant event' is used specifically when describing student instructions for reflective practice. This modification was in response to comments from the Sacramento City College Office of Planning, Research, and Institutional Effectiveness that approved the research; deeming 'significant event' a more neutral term, less likely to connote negativity.

2 Literature Review: Theoretical Underpinnings of Critical Thinking and Reflective Practice

The opening chapter has established the background in context, revealing how coping mechanisms of students, particularly in health education programs, are ineffective and may alternately be destructive. A brief case has been made that reflective practice may cultivate better coping abilities, but that traditional forms of reflection, such as journaling, portfolio development, or faculty-facilitated reflection tend to fall short in this regard. An ameliorative approach, PFR, has been proposed.

The next two chapters explore the professional literature, offering an in-depth discussion of evolving trends in education that have given rise to the popularity of reflective practice. In this chapter, an overview of reflection is provided. The following chapter highlights reflective practice criticisms, pitching PFR as a viable alternative.

Literature was selected for its relevance to this study, the determinants being: reflective practice in educational settings, with an emphasis on physical therapy/physical therapist assistant education; reflective practice in healthcare; teaching reflective practice; criticisms of reflective practice; peer-facilitated reflection; action research; and critical incident analysis. A literature search was conducted in the Discover, EBSCO, and Google Scholar databases using the key words 'reflection,' 'reflective practice,' 'criticisms of reflection,' 'education,' 'physical therapy,' 'physical therapist assistant,' 'peer-facilitated reflection,' and 'group reflection.' It is noteworthy that not a single study was identified that spotlighted reflection amongst physical therapist assistants, either in education or professional practice.

2.1 The critically thinking professional

Over the past several decades, higher education teaching and learning has steered away from a traditional top-down model, whereby the professor implanted facts into the fallow minds of students, to one characterized by a more horizontal hierarchy that

emancipates learners who, rather than passively receiving information, cultivate their own learning and actively construct personal, value laden knowledge (Scardamalia & Bereiter, 2010). Initial assumptions about learning were based on cognitive and behavioral psychology, which focused on direct and measurable outcomes (Brockbank & McGill, 1998). More recent approaches, grounded in constructivism, began to question 'how' students learn, not simply 'what' they learn (Brockbank, McGill, & Beech, 2002). Consequently, paradigms of learning have evolved from such tired notions as memorization or the acquisition of facts (Saljo, 1982); characteristics of the superficial learner. Learning is now expressed in terms of interpretation aimed at understanding reality, abstraction of meaning, and personal development (Marton, Beatty, & Dall'Alba, 1993); concepts that align with the deep or critical learner.

Deep learning differs from superficial learning in that the individual is intrinsically motivated and is responsible for his or her own development (Atherton, 2011). Moreover, deep learners are able to recognize their own learning and are able to relate to and apply it contextually (Atherton, 2011; Marton & Booth, 1997). The transition from a superficial learner to a deep learner is crucial for the healthcare practitioner in training, as his or her practice will immeasurably benefit from the ability to think at a high level of criticality. It is incumbent, therefore, for academic health-professions programs to cultivate deep learners, transforming students from acolytes to critical thinkers.

Critical thinking, according to Elder (2004), is a process that enables the individual to think through situations in any discipline. It requires higher level analysis and problem-solving skills (Wallace & Jefferson, 2015), and it is widely considered a necessary competency for those in the health professions (Chuan-Yuan, Ying-Tai, Ming-Hsia, & Jia-Te, 2013; Wald, Davis, Reis, Monroe, & Borkan, 2009), including the PTA. Ever expanding knowledge, coupled with the need to make sound clinical decisions, demands a practitioner that is a deep critical thinker (Wainwright, et al., 2010). Perforce, clinicians must link theory and practice, a process that depends upon the ability to think critically (Graham, 1995). The critical thinker is one who can more adeptly negotiate the challenges of the profession, using knowledge and reflexivity to improve practice (Higgs

& Titchen, 2001). Furthermore, regulatory and accrediting bodies of physical therapy education programs expect graduates to be critical thinkers who engage in self-assessment (American Physical Therapy Association [APTA], 2009; Australia Physiotherapy Council, 2006; Commission on Accreditation in Physical Therapy Education, 2016; Chartered Society of Physiotherapists, 2005). For example, the APTA's core values include statements which compel physical therapists to assume responsibility for learning and change, and to pursue new evidence to expand knowledge (American Physical Therapy Association, 2009). Section 5.2 of the APTA's (2010) Guide for Conduct of the Physical Therapist Assistant states that "A physical therapist assistant shall engage in self-assessment in order to maintain competence." In the United Kingdom, physiotherapists are expected to provide quality, evidence-based care, which demands a regular review of knowledge and practice (Donaghy & Morss, 2000). Additionally, Australian physiotherapists are obligated to show evidence of reflective practice to maintain licensure (Paterson & Chapman, 2013). To meet these expectations, PT and PTA programs must prepare students beyond accruing just propositional knowledge and technical or professional skills, but with the ability to develop personal knowledge that is characterized by critical thinking.

The capacity to think critically is not innate, and students often struggle to develop this aptitude (Wallace & Jefferson, 2015). Critical thinking represents a significant progression along a continuum of learning, and healthcare education curricula, including PTA programs, must be specifically tailored in order to develop this type of learner (O'Dell, et al., 2009). Unfortunately, many healthcare faculty tend to focus on imparting only propositional and/or professional-craft knowledge (Donaghy & Morss, 2000). Propositional knowledge is concerned with facts and figures, as well as important information that can be recalled. Professional-craft knowledge, otherwise termed as 'know-how' (Titchen & Ersser, 2001), or what Schon (1983) described as 'knowledge in use,' addresses the psychomotor, communicative, and practice-based competencies associated with performing one's job (Higgs & Titchen, 2001).

Though important aspects of any healthcare curriculum, propositional and professional-craft knowledge are inadequate for competent clinical practice, as they are not intrinsically linked to critical thinking ability. Shepard and Jensen (1990) consider such technically-based curricula as inadequate for preparing students to be thoughtful clinicians. While Yelloly & Henkel (1995) argue that competency-based curricula only have the end-product in mind, which undermines the individual's intellectual skills. As with propositional knowledge, professional craft knowledge does not produce a competent clinician, since technical 'know-how' alone fails the student when uncertain circumstances arise. Rather, it is the development of personal knowledge, that which allows the student to situationally adapt and respond, that generates critical thinking ability; an attribute expected of the autonomous professional. **Figure 2.1** reveals how critical thinking emerges at the confluence of propositional, professional craft, and personal knowledge.
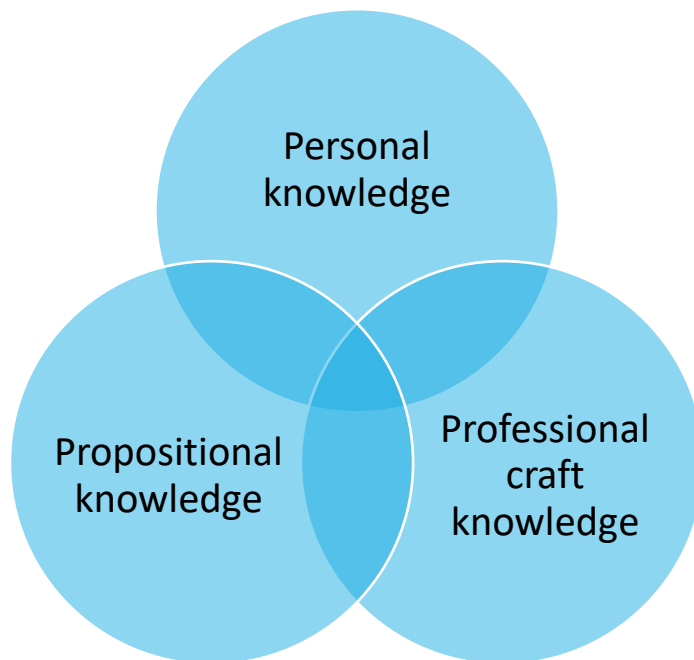
Figure 2.1 **The components of critical thinking**

Personal knowledge is synonymous with one's sense of self (Higgs & Titchen, 2001). It serves as a frame of reference and influences how the practitioner translates both

propositional knowledge and professional craft knowledge into clinical practice. It has been argued by Donaghy and Morss (2000) that personal knowledge is quite often the missing component of the well-rounded critical learner. Moreover, the authors extend, enhanced personal knowledge, when conflated with solid propositional and professional craft knowledge, can lay the foundation for critically reflective practice.

To reach this tier of learning, students must be taught to consider how they learn, not solely what they learn (Brockbank & McGill, 1998). The process builds upon personal construct psychology, which allows the learner to make meaning out of his or her own experiences (Kelly, 1955). This philosophy underpins a valuable process that demands the student to become emotionally and purposefully aware of his or her learning (Higgs & Titchen, 2001). Needless to say, this is not an inherently straightforward endeavor. Acquisition of personal knowledge requires the individual to reflect upon one's experiences (Higgs & Titchen, 2001), something with which many individuals struggle (Mori, Batty, & Brooks, 2008; Watson & Kenny, 2014). Likewise, faculty and program administrators face the difficult task of inculcating reflective abilities within their students. As will be discussed in the following chapter, such endeavors have been met with mixed success. Before disclosing the difficulties associated with fostering pedagogical reflective practice, it is first necessary to provide a brief overview of reflection and its role in the cultivation of the PTA student.

2.2 Reflective practice

The value of reflective practice has been recognized across healthcare disciplines, with its acceptance as a "new orthodoxy and institutional imperative" (Johnston, 1995, p. 74). Nursing, occupational therapy, social work, and physiotherapy have all embraced it for both educational and professional practice (Cunliffe, 2004; Errington & Robertson, 1998; Shephard & Jenson, 1990; Yellolly & Henkel, 1995). At its heart, reflective practice is a meta-cognitive process through which the learner becomes actively and critically engaged in his or her own learning (Brockbank & McGill, 1998). It is transformative, in that it allows the learner to identify and assess tensions within

oneself, and to subsequently develop actionable plans to reconcile those tensions (Boud, Keogh, & Walker, 1985). Clouder (2000a, p. 211) offers a detailed description of reflective practice as "the critical analysis of everyday working practices in order to improve competence and promote professional development." While Clouder provides an operational definition, homage must be paid to John Dewey (1933, p. 379) who first explained reflection as "a purposeful form of thought provoked by unease in learners when they recognize that their learning is incomplete." Dewey considered reflection to be a tool for addressing uncertainty and solving real-world problems, and his thinking has been influential in informing the work of others.

In 1983, Donald Schon expanded upon Dewey's notions of reflection by promoting its use for navigating the professional world and changing practice. Schon distinguished different types of reflection: reflection-on-action, which involves posteriori thinking about an event; and reflection-in-action, or reflecting in the moment, through which "professionals draw on their repertoire of examples to reframe the situation and find new solutions" (Griffiths, 2000, p. 542). The latter strategy is particularly useful for the healthcare professional who must learn to adapt to unique or surprising experiences in the workplace (Griffiths, 2000).

Though descriptions and applications for reflection are manifold, within the context of Schon's paradigm, reflection typically involves a cyclical process through which the practitioner reflects on an action, considers new alternatives for practice, applies those actions, and re-reflects. This represents what is commonly known as 'single-loop learning' (Argyris & Schon, 1978). As skills develop, the practitioner can further reflect upon previous reflections, otherwise known as thinking about thinking. Such steps, detailed as 'double-loop' learning (Argyris & Schon, 1978), allow the reflective practitioner to make sense of his or her assumptions and cogitations that led to a particular course of action. By doing so, the reflective practitioner is able to tap into new insights about how he or she thinks, and to cultivate the personal knowledge that is so fundamental to critically reflective practice. **Figure 2.2** compares single-loop to double-loop learning.

Single-Loop Learning
most common learning style,
problem solving

Governing Variables
Goals, values, beliefs,
conceptual frameworks

Why we do what we do

**Action Strategies
and Techniques**

What we do

**Results and
Consequences**

What we obtain

Double-Loop Learning
more than problem solving, this learning style
reevaluates and reframes goals, values, etc.
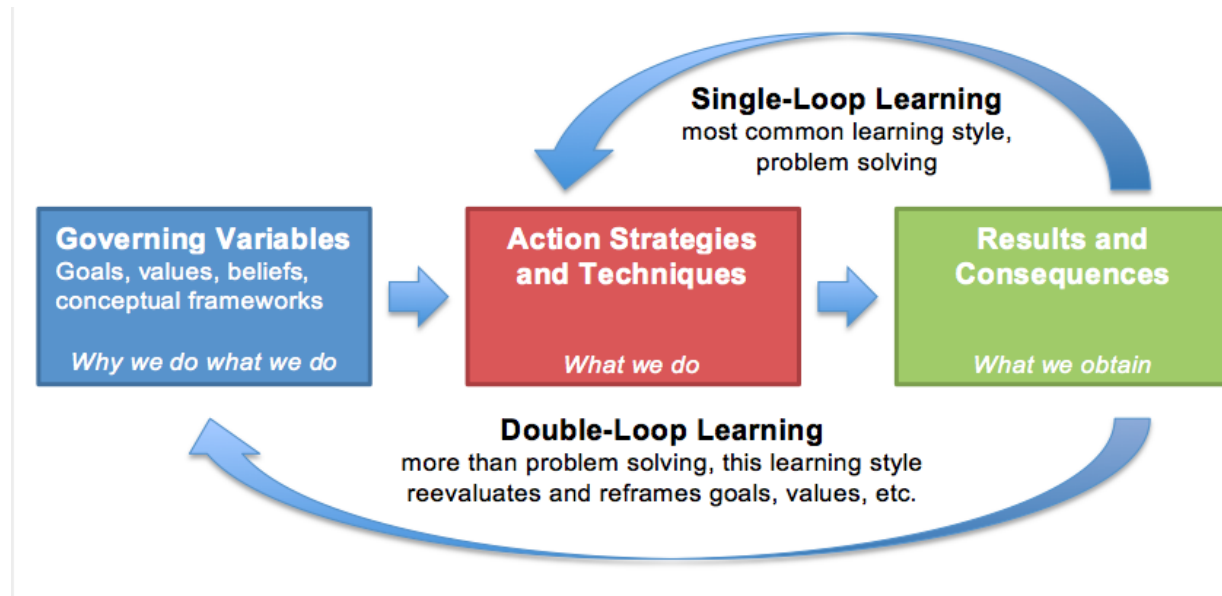
Figure 2.2 **Double-loop learning (Infed.org, 2015)**

2.3 Reflective practice in physical therapy education

Reflective practice has been shown to generate critical thinking abilities (Wallace & Jefferson, 2015). Physical therapy programs recognized the value of reflective practice as early as the 1980s (Shepard & Jensen, 1990). Unfortunately, as Donaghy and Morss (2000) relate, reflective practice was hurried into the curricula of many US physical therapy departments, leaving students and faculty unprepared for this paradigmatic shift. Perhaps it is unfair to lay total blame at the feet of the department administrators. Threading reflective practice through any academic program is fraught with challenges, and many of those challenges are inherent to the theories and practices of reflection itself. In fact, within the firmament of academia, several scholars have been vocal about its flaws. What follows is an explication on some of those criticisms; not to subvert the practice, but rather to highlight issues facing academic programs that incorporate pedagogical reflection. The criticisms are valuable in that they serve as the basis for a literature review that reveals how current research has addressed the expressed concerns. From this review, a clearer picture emerges as to how to redress the identified challenges associated with reflective practice.

3 Literature Review: Critiques of Reflective Practice

This chapter furnishes evidence that supports peer-facilitated reflection (PFR) over more commonly tried reflective methods. Criticisms of traditional reflective practice approaches are closely examined, revealing the attributes and shortcomings of each. Peer-facilitated reflection faces similar scrutiny. In light of the disclosed criticisms, an argument is extended that supports the testing of PFR as a utile means through which to develop PTA students into competent and effective clinicians who can adeptly negotiate the challenges of professional work.

3.1 Reflective practice criticisms

The educational literature identifies a multiplicity of reflective practice criticisms. Common amongst these are: a theory-practice gap, unsuitable modes of reflection, ineffective facilitation of reflective practice, and deficient models of assessment (**Box 3.1**).

Box 3.1 Criticisms of Reflective Practice

Theory-practice gap

Unsuitable modes of reflection

Ineffective facilitation of reflective practice

Deficient models of assessment
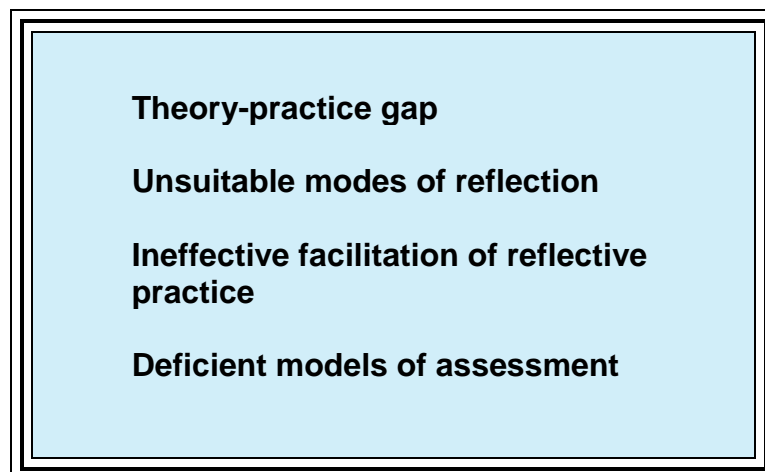
The following sections offer compendia of such criticisms, specifically within the spheres of education and healthcare. An understanding of these criticisms is essential, as it aids

in identifying research gaps and flaws in reflective practice application. From this understanding, ameliorating steps are made possible, both for research and praxis**.**

3.1.1 Theory and practice gap

It is one thing to learn how to reflect. It is another to do so effectively and apply one's reflections toward practice. A theory-practice debate has led several authors to contend that reflection contributes neither to meaningful changes in knowledge nor practice (Akbari, 2007; Atkinson, 2012; Beauchamp, 2014; Conway, 2001; Griffiths, 2000; Korthagen & Wubles, 1995; Russell, 2005; Thiessen, 2000). Understandably, such contentions are problematic for those who promote reflection, as these outcomes lie at its core.

Perhaps the greatest obstacle in linking reflective theory with practice is the lack of any definitional consensus. As reflective practice has evolved since John Dewey first championed its applications in 1933, so have its meanings. This is likely a consequence of its appropriation across many different disciplines, with little understanding of its applications, philosophies, or benefits to learning (Clarke, James, & Kelly, 1996; Clouder, 2000a; Clouder & Sellars, 2004; Morrison, 1995). Ward and Gracey (2006) comment that the contemporary literature fails to reveal any universal clarity with regards to its definition and application. Clouder (2000a, p. 517), in her review of reflective practice in physical therapy education, bemoans the pervasive array of definitions, stating that "almost anyone could claim to be a reflective practitioner" with little knowledge of the craft.

Disparate definitions may be attributed to different philosophical approaches extended by some of reflective practice's seminal figures. These have led to divergent operational paradigms. For example, Dewey (1933) and Schon (1983) emphasized process-based reflection, which obligated the reflective practitioner to adhere to specific steps and sequences while engaging in reflection. Despite these similarities, Dewey favored a scientific or professionally based approach, whereas Schon considered reflection to be a more personally intuitive process (Akbari, 2007). Habermas (1974), on the other hand,

considered the practice to be both socially and psychologically based, which allows the practitioner the flexibility to reflect in ways that precipitate meaningful outcomes, with less priority assigned to the process (Clouder, 2000a). Moon (2004) shares Habermas' views that reflection should yield outcomes, though her take is that the process through which one reflects considerably influences the type and extent of learning that occurs. These are important distinctions which may confound the less experienced reflective practitioner or the faculty member who is tasked with its implementation.

Notwithstanding definitional differences, debate exists as to whether reflection actually precipitates learning or practice changes. King (1995) argues that reflection taught in higher education is not necessarily applicable to the workplace. Eraut (1995) assumes a more critical position, claiming that workplace reflection is often seen as an intrusion by academia. Akbari (2007) echoes these assumptions. He mentions the work of Griffiths (2000), Thiessen (2000), and Korthagen and Wubbles (1995), who all contend that student achievement is scantly supported by the use of classroom-based reflection. Korthagen and Wubbles (1995) argue that teachers who undergo reflective practice training are no more inclined to experience significant changes to their professional practice, a view affirmed by Malkki and Lindblom-Ylanne (2012), whose survey of 76 university faculty failed to find a link between reflection and action amongst those faculty members. Conway (2001) stresses that reflective practice tends to be of the reflection-on-action nature, contemplating what has previously occurred, and that it fails to take into account future possibilities. Thus, reflective practice may not yield meaningful action, because, as Conway (2001) continues, the retrospective nature of reflection does not contribute to imaginative ideas which may prompt new ways of practice. Russell (2005) affirms these views, finding no link between reflection and professional learning or practice. Atkinson (2012) assumes a more circumspect stance, recognizing the value of reflective practice, while simultaneously acknowledging that faculty tends to find that it does not resonate with their personal or professional experiences. The faculty that Atkinson interviewed considers reflection to be an autonomous activity from that of their daily work. What reflective thinking that does occur, Atkinson concludes, is often limited by ideological constraints.

These authors' views do not necessarily negate the value of reflective practice. It seems, rather, that theory-practice gaps may be a product of poor understanding and ineffective approaches; both correctible shortcomings. Postholm (2008) effectively summarizes the problem by recognizing that many reflective practitioners are unable to see the connection between theory and practice themselves. They may identify problems they encounter in their practice, yet they are unable to utilize theory to initiate change. Postholm argues that traversing the gap requires setting practice as the point of departure, working backwards to create a nexus between what one intends to do and how one intends to do it. This strategy may be an effective means by which to transcend the issue of retrospective, versus prospective, reflection that Conway (2001) criticizes, or the autonomous and isolated modes of reflection described by Atkinson (2012). If reflection is undertaken by confronting real-life challenges with the intent of changing practice in mind, then it may be more successful than the purely academic pursuit which has been so maligned in the literature.

3.1.2 Unsuitable modes of reflection

A second criticism of reflective practice is that amongst the traditional modes utilized, none unequivocally contribute to positive outcomes. Within education, the literature reveals that journaling, reflective portfolios, and faculty-facilitated reflection are most regularly implemented (Chuan-Yuan, et al., 2013). Though each mode possesses its own unique attributes, deficiencies cannot be ignored.

3.1.2.1 Reflective journals

Reflective journaling is undoubtedly the most widely reported type of reflection in academia (Chuan-Yuan, et al., 2013; Lindroth, 2015). Reflective journals are attractive for many reasons. Students can easily understand the concept. They afford the student ample time to pause and reflect. They offer structure to the reflections. And they are favored by faculty as a way to encourage learning and development (Constantinou & Kuys, 2013; Spiker, 2014).

These attributes notwithstanding, reflective journaling falls short on several fronts. Perhaps journaling's most salient drawback is that reflection tends to occur at a superficial level (Cross, 1993). Individuals mostly describe events or attend to emotions. Their writing often lacks purpose, as there is no template upon which to form their ideas (Wald, et al., 2009), and they are unable to reach the higher levels of emancipatory thought needed to precipitate change (Richardson & Maltby, 1995). A study by Watson and Kenny (2014) substantiates these assertions. They found that students in a graduate education program were unable to achieve deep levels of reflection through journaling, many not recognizing its value.

The solitary nature of keeping a diary has also lent itself to criticism (Spiker, 2014). Smith and Trede (2013a) comment that journal writing, though sufficient in an academic setting, does not mirror the social nature of reflection that occurs in professional realms. It is further argued that solitary reflection is inadequate because isolated introspection may lead to re-affirmation of one's assumptions (Brockbank & McGill, 1998; Lee, 2010). The individual may be reluctant to face one's own defense mechanisms, and solitary reflection reveals a tendency to be self-confirming, as opposed to emancipating (Brockbank & McGill, 1998). Furthermore, the authors note, learning is a decidedly social endeavor, and real learning may not occur in the absence of intentionally reflective dialogue. The solitary reflective practitioner is bereft of alternate perspectives, and may simply re-affirm any preconceptions he or she holds (Habermas, 1974). Consequently, solo reflection may precipitate self-deception, collusion, and a general lack of awareness (Brockbank & McGill, 1998).

A further criticism of journaling is rooted in its general unpopularity (Driessen, et al., 2005; Spiker, 2014; Watson & Kenny, 2014). In a survey of midwifery students, a majority held an unfavorable view of reflective journaling when compared to reflective dialogue (Embo, Driessen, Valcke, & Van Der Vleuten, 2014). This was attributed to the time commitment that journaling demands, the lack of immediate feedback on their reflections, as well as the uneasiness equated with keeping a journal. Watson and Kenny (2014) found similar views amongst their graduate education students. Sixty

percent reported reflective journaling was the least useful aspect of the course, and many expressed their dislike with the activity. Ward and Gracey (2006), in a survey of 22 physical therapy faculty, found that 27% believed students were unmotivated to reflect and 16% perceived students held negative preconceived notions about reflective practice.

A sense of uneasiness is not uncommon amongst those who decry reflective journaling. It has been argued that it may prompt dishonesty or dissimulation. Reflective practice can be an uncomfortable experience, as one must stare directly and honestly at the facts and deal with one's attendant emotions (Schon, 1983). It requires a sometimes painful assessment of one's values and assumptions, often directly challenging long held beliefs (Barnett, 1992). If ill-equipped to confront these emotions, the reflective practitioner may rely on defense mechanisms, such as denial or self-confirmation, to assuage the psyche (Argyris, 2003; Brockbank & McGill, 1998). Furthermore, students may be inclined toward shielding their true thoughts if the journal will be assessed by a professor (Boud, 2001; McMullan, 2006). This is understandable. Students are apt to chronicle their reflections in ways they believe may appeal to the reader, irrespective of consistencies with their own cogitations (Smith & Trede, 2013a). These tactics inevitably deceive the individual. Furthermore, students may exhibit outright dishonesty. Such occurrences are documented in the literature.

A study by Maloney, Hong-Meng Tai, Lo, Molloy, and Ilic, (2013) revealed alarming levels of willful dishonesty by physical therapy students on a reflective assignment. Thirty-four students were surveyed following submission of the assignment, of which sixty-eight percent acknowledged that they were more than eighty percent truthful, indicating significant dishonesty in their reflective accounts. Student surveys attributed reasons for dishonesty to meeting assignment criteria, difficulty sharing emotions, and difficulty recalling events. Furthermore, students felt pressure to complete the reflective assignments in a timely manner. These reasons are emblematic of the troublesome nature of reflective practice, and support criticisms about time commitments and emotional tolls. Unfortunately, the findings suggest that the dishonest students were

unable to appreciate the value of reflection. It has been argued that those who are unable to appreciate its value will be unlikely to make it a part of their professional practice (Beauchamp, 2014).

A final criticism of journaling involves the process itself. Journal writing is intrinsically descriptive (Johns, 1994). The journalist reveals the details of events on the pages – this routinely being part of the instructions in a customary reflective assignment (Russell, 2005). Even with prompting, the novice practitioner struggles to adequately analyze and truly reflect on the described events, as the written prompts are untailored to his or her needs in the moment. The extent of reflective writing ends there. The journaling thus stalls at the level of recalling and describing events (Johns, 1994).

3.1.2.2 Reflective portfolios

Like reflective journals, reflective portfolios have also proven inadequate. A reflective portfolio is a collection of evidence that reveals personal and professional development through exhibits of a student's work and reflections on that work (Plaza, Draugalis, Slack, Skrepneck, & Sauer, 2007). As with journaling, the reflective practitioner remains isolated, and subsequently his or her reflections are unlikely to evolve to a more meaningful level (Cross, 1993). For instance, Driessen, van Tartwijk, Overeem, Vermunt, & van der Vleuten, (2005) found that medical students who kept portfolios often resorted to simply recording experiences, and not actually reflecting. Along these lines, Wilhite (1995) suggests that portfolios tend to reveal only summative evaluations of one's work, and that they are biased toward reporting on excellence. Moreover, Adams (1995) and Wilhite (1995) acknowledge that constructing and assessing portfolios could be overwhelming to both students and faculty alike, given the volume of documents that typically comprise a reflective portfolio.

3.1.2.3 Mentor-facilitated reflection

Faculty or mentor-facilitated reflection has emerged as a popular alternative to reflective journaling (Johns, 1994). The student reflects openly in the presence of a faculty facilitator, who, in turn, assesses the student's guidance needs, and accordingly offers

direction toward deeper reflective practice. Thus, one problem with reflective journaling, unguided prompts or directions, is addressed through facilitation. However, as with journaling, students may still struggle to reflect beyond a purely descriptive level. Perhaps due to defense mechanisms, students often exhibit an impassive veneer when asked to reflect in the sole presence of a faculty member, thus hindering the reflective experience and stifling learning (Brockbank & McGill, 1998). For this reason, contends Johns (1994), coached discussions tend to be most beneficial in the latter phases of reflection, but may be inappropriate for the novice practitioner.

Reflective facilitators may encounter their own challenges, as even the trained facilitator can succumb to common pitfalls. Brockbank & McGill (1998) note that facilitators routinely provide feedback that is too negative or that the amount of feedback is so great that it becomes overwhelming to the student. Facilitators, thus, require an evolved level of self-awareness in order to avoid these non-productive routines.

A further complaint about mentor-facilitated reflection is the time constraint. Morris and Stew (2007) reported that students and instructors alike found one-on-one reflection to be limited by time availability. The authors attempted to circumvent this problem by adopting a two student-to-one facilitator approach that they deemed only marginally more feasible.

Traditional models of reflection, though popular in academia and professional practice, reveal deficiencies not easily overcome. Alternate reflective approaches may be required to better develop student critical thinking abilities.

3.1.3 Ineffective facilitation

In some countries, such as the US and the UK, PT and PTA programs are obliged to train students in critical thinking and reflection (Commission on Accreditation in Physical Therapy Education, 2016; Chartered Society of Physiotherapy, 2005). By and large, these students are new to reflective practice, and require attentive guidance (Smith & Trede, 2013b). Unfortunately, faculty are often ill-equipped for the task, with little

knowledge or experience themselves (Brockbank & McGill, 1998; Hobbs, 2007). Ward and Gracey (2006) report that most faculty in PT education programs have received no reflective training, and that no consistent methods of inculcating reflective practice appear in PT curricula. Russell (2005) takes these arguments a step further by suggesting that reflection in academia may do more harm than good, as faculty are often unable to provide adequate clarity to their students, nor do they model it appropriately. Beauchamp (2014) notes that educators regularly fail to provide clarity on reflection to their students. This is unsurprising, given the lack of definitional consensus.

Ineffective facilitation is, therefore, problematic. Clouder (2000b) contends that deep reflection is unlikely to occur without some degree of facilitation. The novice reflective practitioner typically only reflects superficially, at a level characterized by recall and description (Beauchamp, 2014). This involves thinking about and describing a past event, whether socially or introspectively (Maree & Van Rensburg, 2013). Retrospective reflection may be useful for review or understanding, but it fails to elicit meaningful change. As the reflective practitioner matures, he or she becomes able to reflect at an emancipatory level; one that considers not just the 'why' of events, but the 'how,' as well (Maree & Van Rensburg, 2013). Such deep and analytic thought precipitates the altered practice that Schon (1983) regards as obligatory to successful reflection. Hobbs (2007, p. 406) acknowledges that reflective practice is a skill that "comes with experience and great intellect," while Maree and Van Rensburg (2013) note that while we all inherently reflect to a certain extent, intentional reflection requires a determined commitment by the individual, and that the skills to reflect effectively must be developed through facilitated practice. Consequently, students will not reap the rewards of reflective practice without a guide who is able to cultivate their reflective abilities from those of being superficial and descriptive to those that occur in the realms of analysis and self-emancipation.

The upshot is that if a faculty member is unclear about paradigms and definitions, is inexperienced with reflective modeling, is uncertain or unwilling to embrace reflective practice as an alternate yet contemporary way of learning, or is not evolved enough in

his or her own self-awareness, then facilitative efforts may be ineffective. What is needed, therefore, is an approach in which faculty take ownership of their facilitative roles. This is best achieved when they envision the benefits of reflective practice for their students and become active participants in the process themselves. Through such means, faculty and students alike can bear witness to the closing of the theory-practice gap.

3.1.4 Deficient models of assessment

As a preponderance of academic physical therapy programs have implemented reflective practice into their curricula, sometimes at the behest of accrediting or regulatory agencies, the need to assess student reflective abilities has followed. However, some feel that the nature of reflection does not lend itself to external assessment (Cooper, 2014; Sumsion & Fleet, 1996), as it tends to measure the capacity of the students to perform to the expectations of the assessors (faculty) at the cost of allowing students to reveal their true selves (Smith & Trede, 2013a). The authors (p. 447) elaborate by suggesting that students tend to create "reflective identities," in which their reflections may conform to what they believe faculty are seeking. Students may subsequently be prone to dissimulation (Boud, 2001) or dishonesty (Maloney, et al., 2013) in their reflections. As Eaton (2016, p. 162) states, "The most worrying aspect in my experience is that trainee practitioners begin to follow the rote of models of reflection solely for assignment outcomes and portfolio filling."

Other criticisms center on the assessment tools themselves. Smith and Trede (2013a) claim that contemporary approaches to reflective assessment are generally criterion-based. The problem, they assert, is that criterion-based rubrics are ill-equipped to address the personal and complex nature of reflection. Boud (1999) is more denunciatory. He considers rubrics to be reductionist. Rubrics often list steps toward reflection, and are derived from the premise that reflective practice is a procedural endeavor, whereby if one simply follows a designated sequence of steps, one has effectively reflected. Such measures rely on assumptions of a 'correct' way to reflect, but fail to consider personal development or enhanced outcomes.

Stewart and Richardson (2000) are equally strident about the irreconcilability of reflection and assessment. Their opinions take root in the notion that reflection is a genuinely personal activity, and that outside assessments may succumb to the biases of those assessing. The authors suggest a method in which faculty model and facilitate reflective practice, but it is the students who actually engage in self-assessment. Any formal assessment of reflection, the authors continue, should occur during mock or real-life scenarios, through which critical thinking skills, a product of effective reflective practice, are manifest.

Smith and Trede (2013a) support these views. They acknowledge that the targeted outcome – i.e. appropriate responses grounded in critical thinking – reveal whether or not a student is able to effectively reflect. In other words, assessment should be contextual, as reflection is tied to actual events (Boud, 2001). McMullan (2006) echoes these opinions, noting that the efficacy of reflective practice is best determined by identifiable practice behaviors. Hobbs (2007) does caution that students must first develop their reflective abilities before they are assessed, and Smith and Trede (2013a) support the notion that assessment should be individualistic.

Reflective assessment requires faculty to reconcile external reporting demands with the very personal nature of reflection itself; not an easy task. Any measures of reflective ability should account for the student's own assessment of how well reflection enabled him or her to identify self-behaviors, and to respond to those behaviors accordingly. In that sense, faculty can assess process efficacy, while leaving students unconstrained by criterion-based measures that reveal little about reflective ability.

3.1.5 Summary of criticisms

The presented evidence lends credibility to reflective practice's criticisms. Unsuitable modes of reflection, ineffective facilitation, and inappropriate assessment methods, all leading to a theory-practice gap, undermine its utility. However, these issues are not insuperable. Notwithstanding the described criticisms, a majority of scholars recognize

the value of reflective practice; namely, that it is an effective means through which to develop deep critical thinking skills (Wallace & Jefferson, 2015). It begets the accomplished, competent, professional practitioner. However, the criticisms cannot be ignored. If reflection is to thrive in academia, then a paradigmatic shift is needed. **Box 3.2** highlights features of a more effective reflective model that deserves consideration.

Box 3.2 **Recommendations for a Reflective Practice Model**

Close the theory-practice gap by agreeing on contextually-based definitions and implementing reflection that focuses on substantive outcomes

Select modes of reflection that motivate both students and faculty and that foster deeper levels of thinking

Promote active facilitation that allows participants to envision outcomes

Design more participatory assessment models that consider contextualized outcomes and student perceptions, and that examine the efficacy of the reflective model

The question arises: does such a model already exist?

3.2 The case for peer-facilitated reflection

Peer-facilitated reflection, an underutilized though emerging model of reflective practice, appears to address many of the failings of traditional reflection, and may offer answers to criticisms found in the literature. It relies on structured conversational exchanges between individuals that typically share common professional or academic experiences, with the aim of supporting and improving practice (Platzer, Blake, & Ashford, 2000a),

and it typically involves a guided process to facilitate deeper levels of reflection (Williams & Walker, 2003). Peer-facilitated reflection has been lauded as generating creativity, emancipating thinking, providing alternate perspectives, enabling trust, and it is looked upon favorably by participants (Graham, 1995; Ladyshewsky & Gardner, 2008; Murray, et al., 2011; Walker, Cooke, Henderson, & Creedy, 2013). Its usage has taken hold in nursing, due to its ability to challenge and transform practice, as well as to elicit change (Carter, 2013). But its incorporation into physical therapy education is scarcely found in the professional literature.

At first glance, the benefits of PFR seem clear. However, its drawbacks cannot be ignored. Group discussions can easily become disorganized without effective facilitation (Graham, 1995), or they may "pool ignorance" (Carter, 2013, p. 94). Power differentials may derail discussions, and issues of confidentiality may stifle candor (Carter, 2013). Lindgren, Brulin, Holmlund, and Athlin (2005), and Knight, Sperlinger, and Maltby (2010) suggest that peer reflection can provoke anxiety. Shortcomings aside, the advantages of PFR seem too valuable to ignore.

But is PFR a panacea for all of the ills associated with reflective practice? To address this question, a collection of studies examining various permutations of PFR were scrutinized in light of the criticisms previously highlighted. Though the authors themselves may not have confronted these criticisms, studies were examined through that lens.

3.2.1 PFR as an alternative to traditional modes of reflection

Platzer, Blake, and Snelling (1997) provide a fairly comprehensive meta-analyses of peer reflection. They cite several authors who draw attention to the difficult nature of reflective practice itself, which include unawareness of value-based knowledge (Johns, 1994), anxiety associated with the recall of events (Newell, 1992), hindsight bias (Jones, 1995), limited perceptions, and closed-minded attitudes (Johns, 1994). Traditional modes of reflection, Platzer, Blake, and Snelling (1997) contest, are unable to circumvent these difficulties. As a redress, the authors argue that PFR presents a

useful, alternate model. For instance, the dialectical nature of PFR may generate creativity (Carter, 2013) or offer new perspectives for participants (Graham, 1995), in contrast to the self-confirming habits associated with isolated reflective approaches (Brockbank & McGill, 1998). The cooperative discourse characteristic of PFR, which draws upon personal construct theory, can facilitate learning, as group discussion may elicit greater changes than would otherwise occur via solitary reflection (Franks, Watts, & Fabricius, 1994). Shared discussions can also enhance feelings of professional identity, as well as awareness of institutional culture (Carter, 2013). Peer-facilitated reflection is considered by many to be non-threatening in comparison to mentor or faculty facilitated reflection (Wessa & de Rycker, 2010; Williams & Walker, 2003; and Wood & Kurzel, 2008). Consequently, groups can challenge students and push them into deeper reflection (McGill & Beatty, 1995; Miller, Tomlinson, & Jones,1994). Moreover, PFR allows for the public testing of ideas (Snowball, Ross, & Murphy, 1993). Noted earlier, Schon's (1983) paradigm of reflection exhorts practitioners to use reflection as a tool to manifest change. Bouncing actionable ideas off group members compels the individual to meaningfully consider what has been presented, and it allows the reflective practitioner to make better sense of his or her executable options. As Rodgers (2002, p. 856) states, "Having to express oneself to others, so that others truly understand one's ideas, reveals both the strengths and holes in one's thinking." Furthermore, peers who offer feedback also benefit, as they must evaluate and consider the meaning behind their own responses (van den Berg, Admiraal, & Pilot, 2006).

3.2.2 PFR and the theory-practice gap

Perhaps the most salient critique of reflection is that its underpinning theories do not align with practice. A wealth of PFR studies counter this argument, demonstrating meaningful, practice-based outcomes.

Platzer, Blake, and Ashford (2000a) investigated PFR as a means to prepare student nurses to transcend obstacles typically encountered in professional practice. Group discussions followed by interviews revealed overwhelmingly positive outcomes. Students reported greater comfort at examining issues in-depth, and they felt less

threatened by the uncertainty of their professional practice. At a practice-based level, students acknowledged that their critical thinking skills had improved, and that they were subsequently more confident in recognizing knowledge deficiencies, while at the same time they felt emancipated to challenge the status quo. The authors suggested that findings support theoretical frameworks of knowledge acquisition; namely, that in Mezirow's (1981) practical and emancipatory phases of learning, knowledge assimilation is bolstered by social interaction. They further argued that the social nature of PFR allowed students to identify real problems, reify concepts, and envision alternate perspectives; all emblematic of more advanced levels of reflection.

Tsang (2011a) examined oral health student perceptions of embedded in-class reflective discussions that relied on a critical incident framework. Notably, students considered value in both reflective writing and reflective discussions, but in different ways. Students expressed that they benefited from the peer learning aspect of reflective discussions, finding that exposure to multiple perspectives enhanced their critical thinking. Additionally, students found the supportive nature of reflective discussions particularly appealing.

Walker, et al., (2013) utilized the concept of learning circles, akin to PFR, to encourage the deconstruction and confrontation of traditional ways of thinking amongst clinical nurse supervisors and their nursing students. The value of learning circles, the authors argued, is that they can enhance individual and organizational growth, as reflection, analysis, and planning occur at both individual and group levels. The authors found that participants, when encouraged to share personal experiences from their work, were able to collectively deconstruct the shared accounts, confront difficult topics, theorize different possibilities to surmount the issues, and then apply those theories to practice. Survey data revealed that the learning circles enhanced communication, and that participants could readily visualize and implement more effective forms of practice.

Murray, et al. (2011) examined how PFR could improve strategies for clinical medical faculty when dealing with troublesome issues in the workplace. The authors suggested

that complex problems without easily identifiable resolutions are ideal for PFR. Results indicated that many, though not all, problems were soluble through this approach. Nonetheless, the authors considered the practice to be overwhelmingly positive. They discovered value in the blend of support and challenge that PFR offers. In particular, contrasting viewpoints revealed knowledge gaps amongst group members, which, in turn, served as the basis for further enquiry and action planning.

Hudson and Hunter (2014) investigated the effects of PFR on service learning students over the course of an academic semester. A single peer-facilitated discussion was followed by a reflective essay. Discussion analysis indicated that students' organizational skills improved following PFR. The authors theorized that peer reflection offered individuals an alternate route through which to reflect, thereby shedding themselves of 'schema' which only re-affirm existing viewpoints. Peer reflection, they claimed, was emancipating, affording individuals a chance to surmount learning thresholds.

Delany and Watkin (2009) sought to evaluate the effects of peer-facilitated discussions on third-year physical therapy students' clinical experiences and learning skills. Students met in faculty-guided forums over several weeks to discuss critical incidents, with the aim of deconstructing thoughts, emotions, and actions. Discussions were followed by a summary, written assignment in which students reflected on the process. Participants reported a gained sense of empowerment and validation from the intervention; factors which have been linked to effective clinical learning (Wessel & Larin, 2006; Williams, 2002).

Ladyshewsky and Gardner (2008) adopted a novel approach to PFR: internet blogging discussions. Students were clustered into reflective groups and shared their thoughts on professional and evidence-based practice. Focus group interviews were conducted at the conclusion of the clinical rotation. Findings suggested that the online PFR approach aided reflection because it allowed students to contemplate at length on their virtual dialogues. Moreover, students tended to like the simplicity, convenience, and non-

threatening nature of peer-reflection, mentioning that its collective nature reduced their sense of isolation. Students and moderators considered peer-blogging to be a more effective way to reflect as compared to journaling or essay writing. Perhaps most important, students were able to realize changes in practice, as they could draw upon experiences shared by their peers and apply them to their own clinical practice settings.

Similar to Ladyshewsky and Gardner (2008), Mori, Batty, and Brooks (2008) utilized an online reflective format with first-year physiotherapy students. As opposed to blogging, reflective assignments were submitted online for peer, faculty, and self-review. Most students expressed confidence with performing the reflective assignment, and they felt comfortable sharing their reflections with peers. Overall, students revealed that the assignment was beneficial, and that most followed through on action plans they had identified in their reflections.

Though not inclusive of all PFR studies, those highlighted make inroads into contradicting the sentiment that reflection fails to elicit practice changes. However, further evidence supporting the efficacy of PFR in closing the theory-practice gap is warranted.

3.2.3 Facilitation and PFR

Reflective facilitation has been criticized for its ineffectiveness or absence. Despite no consensus about a preferred way to facilitate, scholars of PFR are virtually unanimous that intentional and attentive facilitation is required. Franks, Watts, and Fabricius (1994) suggest that discussion structure relies on facilitator presence, but that a balance of structure and space is needed. Maddison and Sharp (2013) acknowledge that facilitation can promote deeper reflection, whereas Stevenson (2005) warns that too much supervision can feel like surveillance, thus stifling or sanitizing discourse (Clouder & Sellars, 2004). Many scholars have offered suggestions for implementation that seek the delicate balance Franks, Watts, & Fabricius (1994) describe.

The Role of Peer-Facilitated Reflection

Westberg and Jason (2001) provide one of the most comprehensive frameworks for facilitating PFR. To begin, they propose, participants need to be made aware of the value in reflection by exposing its purpose and potential outcomes, or, as Postholm (2008) recommends, establishing outcomes as the starting point. Prior to discussion, an agenda and ground rules should be established. These steps, the authors contend, ensure that reflection occurs in a safe environment and that time is effectively used. During discussion, the facilitator can foster reflection by helping participants ask probing questions and encouraging them to seek alternate perspectives. This, the authors suggest, is best achieved through modeling behaviors. Interventions are required if the discussion loses focus or if peer critiques are not constructive. Following a reflective discussion, learners should be coached to extract general principles and strategies, and to reflect upon the process itself.

A few authors have commented on the efficacy of their own facilitative efforts, while some have highlighted their shortcomings.

Supportive facilitation, coupled with clear definitions and protocols, improved communication between nursing students and their supervisors who engaged in 'learning-circle discussions,' stated Walker, et al. (2013). The authors noted that student participants felt more secure in a structured group setting where facilitator presence leveled the playing field between clinical nurse supervisors and students. The importance of this cannot be overstated, as power-differentials present a looming concern for any group discussion.

Ladyshewsky and Gardner (2008) found that overbearing moderators may have repressed open discourse in online peer discussions. These views align with Delany's and Watkin's (2009), who acknowledged the need to better train discussion facilitators to assume more supportive roles. They went a step further by questioning whether supervisors should act as facilitators, as their presence tended to stunt meaningful dialogue.

Other authors have spotlighted the value of peer-led discussions, in which participants supervise themselves. Arvidsson, Lofgren, & Fridlund (2000) found that group-led facilitation improved trust, courage, and independence amongst psychiatric nurses engaged in peer reflection. Hudson and Hunter (2014) relied on student-facilitated, as opposed to faculty-facilitated, discussions. The strategy was motivated by a desire to enhance the organizational, focus of the students themselves. Unfortunately, the authors offered little to illuminate the outcomes of this approach.

Irrespective of method, facilitation is paramount to the success of PFR. Despite suitable frameworks, the efficacy of those efforts has not always been wholly elucidated. A more comprehensive analysis is therefore required.

3.2.4 Assessment of PFR

It is argued that the assessment of reflective practice is poorly understood (Sumsion & Fleet, 1996). Criticisms have mostly targeted criterion-based assessments. Such assessments tend to examine process over outcomes (Boud, 1999; Smith & Trede, 2013a), though processed-based assessments are often ill-defined. The following studies examine assessment within the context of PFR, though it should be recognized that all modes of reflection are assessible. Findings inform assessment approaches adopted for this research.

Hudson and Hunter (2014) interpreted students' post-discussion essays to determine the effectiveness of group discussions. Analysis proved troublesome for the authors, as essays tended to resemble reports rather than reflective papers; focusing more on the 'what' as opposed to the 'why.' This highlights the weaknesses associated with reflective writing, and brings into question the authors' choice of an assessment approach (reflective essay) that was inconsonant with the intervention (reflective discussion).

In Mori, Batty, and Brooks' (2008) study of online, peer-reflective assignments, the authors chose to assess reflective essays using Al-Shehri's (1995) criteria for reflective

quality. These criteria describe reflection in qualitative terms, based upon indicators observed in the writing. Students also were surveyed via a Self-Directed Learning Readiness Scale (Guglielmino, 1978), which, as the name implies, measures a student's readiness to engage in self-directed learning (Merriam, Cafarella, & Baumgartner, 2007). The authors noted that assessments using Al-Shehri's criteria revealed only superficial reflection by the student participants, whereas scores on the Self-Directed Learning Readiness Scale indicated enhanced reflective abilities. Both assessments produced findings seemingly at odds with each other, underlying the difficulties associated with standardized assessment tools.

Perhaps the most promising PFR assessment was a model developed by Panadero and Monereo (2013). The authors utilized an assessment instrument that examined levels of change in professional identity of higher education teachers who collectively reflected on accounts of critical incidents. It proved valuable in that the authors could hierarchically classify modifications to practice subsequent to these activities. Moreover, the authors concluded, the instrument was useful in determining the efficacy of the shared-accounts approach.

The findings of Panadero and Monereo (2013) are important. Most assessment tools use qualitative reflective indicators or focus on process adherence. However, these authors fashioned a tool that was used to assess how well self-reported outcomes were linked to the analysis of critical incidents themselves. The instrument allowed for the interpretation of an individual's own reflection, a necessary component of the double-loop learning described by Argyris and Schon (1978). It further provided a means through which to determine the efficacy of a particular paradigm of reflection. The instrument, therefore, is useful for both the reflective practitioner and the researcher. Consequently, it has been adapted for this research; details of which are presented in subsequent chapters.

3.3 A comprehensive model of reflection

The literature supports PFR as a worthwhile reflective approach. Evidentiary findings help to impugn common criticisms of reflective practice; though admittedly, no single PFR design has countered, or even addressed, all criticisms. Consequently, a comprehensive model of PFR that does just that is called for. How would such a model appear?

For one, it would need to narrow the theory-practice gap. This can be accomplished through reflection that is geared toward real-world incidents and issues, and that generates implementable problem-solving action. A number of authors (Delany & Watkin, 2009; Ladyshewsky & Gardner, 2008; Walker, et al., 2013) have cited the value of critical incidents, which serve as foci for reflection and initiating practice changes.

Standard modes of reflection, such as journaling and portfolios, have been deemed inadequate in academia; producing mostly descriptive, superficial reflection. The social nature of learning demands a reflective process that allows for participatory discourse; that which is achieved through PFR. Face-to-face discussions are, arguably, more appropriate than written methods.

Evidence suggests that students are not naturally inclined to reflect at a level that can spawn meaningful changes (Graham, 1995). Therefore, faculty facilitation is essential. A comprehensive facilitation model, such as proposed by Westberg and Jason (2001), is attractive. Their framework addresses facilitation prior to, during, and after PFR, stressing the value of reflection, participatory goal and agenda setting, and perspective sharing. Furthermore, facilitation should seek a balance between supervision and space (Franks, Watts, & Fabricius, 1994), which may be best achieved when facilitators engage as equal participants (Carter, 2013) or when they train students to be their own facilitators (Stevenson, 2005).

Any reflective approach needs to provide evidence that it works. Current assessment models tend to focus mostly on adherence to reflective steps that reveal little about

outcomes. A participatory assessment model that values learning and change may be more suitable. Assessment emphasis must be "no longer on proving but improving" (Springett, 2001, p. 148), and it requires a paradigmatic shift toward "questioning judgment, decision making, and practice wisdom" (Cooper, 2014, p. 566). Fortunately, these types of assessment models are available. Davies' and Dart's (2005) Most Significant Change technique comes to mind. It is a process through which changes in practice are evaluated as a consequence of new understandings. Panadero and Monereo (2013) have developed a hierarchical model of evaluating changes in professional identities based upon the sharing of critical incidents. Both of these assessment schemes incorporate an interpretivist paradigm, requiring the practitioner to derive meaning from reflections about the process itself. The latter approach is perhaps more contextually suited to this research.

Based upon these identified needs, I propose the following comprehensive model of PFR (**Table 3.1**)

Table 3.1 **A comprehensive model of peer-facilitated reflection**

Criticism	Solution
Theory-practice gap	Reflection that is focused on real-world incidents that generate implementable action leading to measurable outcomes
Unsuitable modes of reflection	Reflection that is socially constructed and interactive
Ineffective facilitation	Participatory facilitation at all stages of reflection, relying on both faculty and students

Deficient models of assessment	Assessments that examine outcomes from the context of the participants' perspectives and the efficacy of the process

This peer-reflection model requires students to identify real-world issues from which they can collectively develop realistic action plans aimed at generating meaningful outcomes. Peer reflection is guided, yet remains deliberately unconstrained by rigid structure, as to nurture the free flow of ideas. Participants assess the efficacy of the process themselves by commenting on outcomes linked to their own developed capacities to cope with critical incidents. To test both the efficacy and feasibility of this peer-reflective model, the following research questions (**Box 3.3**) are posed.

Box 3.3 **Research Questions**

In what ways do PTA students feel that peer-facilitated reflection has helped them to cope with critical incidents, if at all?

What facilitation efforts are required to effectively implement PFR?

How is the efficacy of PFR better assessed in an academic setting?

The Role of Peer-Facilitated Reflection

In summary, PTA students, much like other students in the health professions, must develop adequate skills to negotiate the challenges of academic and clinical work. These skills require the ability to think critically. Reflective practice has been shown to best develop these abilities, yet the literature reveals significant shortcomings in the way that reflective practice is implemented both pedagogically and in professional practice. An alternate model of reflective practice, built on a framework of peer-facilitated reflection, has been proposed to counter the criticisms and provide a practical approach for PTA students. Subsequent chapters will report on how this model was implemented and put to the test.

4 Methodology

This research investigated the effect that peer-facilitated reflection (PFR) had on the ability of physical therapist assistant (PTA) students to cope with critical incidents that arose during classroom or clinical experiences. It further examined key operational aspects of implementing PFR into an academic PTA program. The previous chapters emphasized the importance of critical thinking capacity for those entering the healthcare professions; in particular, physical therapist assistants. The capacity to critically think enables the healthcare student or professional to more successfully negotiate adversity within the academic and clinical realms. A case was made that critical thinking is best cultivated through reflective practice. However, the literature revealed that inculcating successful reflective practice in an academic setting is fraught with challenges, as many of the commonly appropriated modes of reflection have proven inadequate. Consequently, an argument was extended that PFR could offer both an advantageous and feasible means through which to encourage reflective practice amongst students. The purpose of this study, therefore, was to implement PFR to a cohort of PTA students, and to test the theory that it is an effective approach for developing the critical thinking skills necessary to meet the challenges encountered in academic and clinical work. Investigation was undertaken using a method of critical incident analysis within an action research framework.

This chapter expounds and rationalizes the selected methodologies appropriated for this research: action research, a theoretical investigative model popularized by Kurt Lewin (Lewin, 1946), and critical incident analysis (CIA), first presented as 'critical incident technique' by John Flanagan (1954). Critical incident analysis is fittingly subsumed within action research, as the processes of each methodology are strikingly similar. Each draw upon analogous ontological and epistemological frameworks, in that they fall under an interpretivist paradigm; that which is characterized by knowledge generation through social constructs (Meyers, 2009). In practice, both methodologies rely on cyclical iterations that include phases of planning, acting, and reflecting (Kemmis, McTaggart, & Nixon, 2014; Schluter, Seaton, & Chaboyer, 2008). They have

been developed with the notion that individuals within organizations can both provide data and act as progenitors of change (Koshy, 2005). Furthermore, they share a common aim; that of improving practice, particularly in work or professional settings (Flanagan, 1954; Winter & Munn-Guddings, 2001). As this particular research encompasses each of these characteristics, the selected methodologies are appropriately suited.

The following sections describe the historical developments of action research, as well as its utility as an intrinsically situated investigative methodology. Subsequent sections provide an historical overview of critical incident analysis along with a description of its applicability for influencing personal and organizational change.

4.1 Historical perspectives of action research

Action research was founded on the premise that empirically based research was inadequate to address the needs of organizations (Coghlan & Brannick, 2010). In the early half of the 20th century, a collection of social reformists, including Collier, Corey, Lewin, Lippitt, and Radke, heeded the need to move away from a top-down model of enquiry to one that was situationally contextualized to the workplace, that was able to transcend disciplines, and that took into account social tensions manifest within organizations (Gibbons, et al., 1994; Masters, 1985). Through their efforts, action research was born. Most notable of these reformists was Kurt Lewin, a social psychologist at the Massachusetts Institute of Technology, who popularized the technique in contemporary social and organizational research (Coghlan & Brannick, 2010). What emerged from Lewin's and others' work was a process that has been described as collaborative and oriented toward problem solving, by allowing democratic participation of stakeholders, along with data and theory, to guide the research itself (Coghlan & Brannick, 2010).

Lewin's work has evolved over recent decades. Most notably, action research is now characterized as a framework through which the investigator and the study participants

are democratically engaged in data generation, leading to the development of actionable ideas (Koshy, 2005). Unlike positivist research, where the investigator acts as an objective observer, action research is both epistemically and methodologically reflexive (Johnson & Duberley, 2000), in that researcher biases are self-challenged, and data generation methods are modified based upon insights gained through enquiry.

The epistemological reflexivity of action research has proven useful. Its initial utilization in the field of organizational development is fitting testimony (French & Bell, 1999; Burke, 2008; McArdle & Reason, 2008; Weisbord, 2004). Though Kurt Lewin launched the action research movement, its role in organizational research was extended by scholars such as Edgar Schein, Ron Lippitt, Warren Bennis, and Chris Argyris, to name a few (Coget, 2009). Soon, other disciplines harnessed its utility for promoting meaningful organizational change. Education, most notably through the work of Corey (1949), Taba, Noel, and Marsh (1955), and Stenhouse, Ruddick, and McDonald (1971) embraced action research (Masters, 1985; Pine, 2008; Zeichner, 2001). This was followed by healthcare (Winter & Munn-Giddings, 2001; Hughes, 2008), and nursing (Koch & Kralik, 2006). It could be argued that most fields, perhaps with the exception of the physical sciences, can find utility in action research.

4.2 Utility of action research

Action research encompasses manifold methodological frameworks, each suited to a particular research aim. Coghlan and Brannick (2010) concede that not every study will draw from each framework, but that a rapprochement of select methodologies can be put to good effect within a given action research project. This research did just that. Not only did the study draw on the multi-faceted characteristics of action research, it required them. As a primary purpose of this study was to elicit curricular changes within my own department, it needed a methodology that would allow 'insider' research in the workplace. Since both student participants and investigator would work as collaborative stakeholders to improve practice, the study demanded a methodology that embraced both participatory and democratic ideals. Furthermore, a flexible methodology was

desired, as the unpredictable nature of investigating human subjects in an academic setting would make it difficult to adhere to strict protocols. Finally, as reflection itself was the cornerstone of this research, a methodology that was built on the foundations of reflective practice was paramount. As will be revealed, action research met each of these requirements.

4.2.1 Action research in the workplace

Since the main purpose of this research was to improve curricular practice in the PTA program that I chair, it was sensible to conduct research within the environs of the program itself. Action research is arguably the most suitable investigative technique for this type of endeavor. At a fundamental level, action research allows organizations to embark upon study within their own walls and elicit meaningful change (Gummesson, 2010). It is less about creating new knowledge. Rather, it serves to link existing theory and knowledge with action (Reason & Torbert, 2001); a concept that aligns well with organizational change management. Much of its appeal is rooted in its flexibility, adaptability, and orient toward problem solving (Costello, 2003). Because of these characteristics, action research is considered congruous with workplace analysis and change (Blaxter, Hughes, & Tight, 2010), and, consequently, with this study.

4.2.2 Participatory and democratic ideals

As this research aimed to guide curricular improvements, the value of stakeholder (student participants and investigator) input could not be overlooked. Students possess an insider perspective on how the PTA curriculum influences learning and practice. The Commission on Accreditation in Physical Therapy Education (2016) considers students to be valued stakeholders, and, as such, they are expected to play a role in programmatic assessment and improvement. Consequently, this research was designed to afford students active participatory roles, allowing them to engage in shared reflections and discussions, as opposed to being simply observed as study subjects.

Perhaps the most intriguing characteristic of action research is that it draws upon the concepts of democratization and egalitarianism (Coghlan & Brannick, 2010). Wherein

more traditional forms of research delineate separation of investigator and those being researched, action research emancipates subjects to the level of participants in knowledge enquiry itself (Argyris, 1993). This approach represents a shift away from the top-down, hierarchical models that Gibbons, et al. (1994) deemed inadequate for organizational research, as such approaches fail to consider insider viewpoints. A participatory model allows study subjects to influence the course of enquiry through their own input into the investigative process. Such an approach yields outcomes that are generated at a grass-roots level, and that are influenced by many voices (Parsons & McRae, 2007).

Granted, participatory or democratic models are removed from exclusively positivist paradigms found in traditional research. Some argue that such methods threaten the validity of research generated knowledge claims, as participant or investigator bias undermine the legitimacy of findings (McNiff & Whitehead, 2000). I would agree. But it is worth acknowledging that overt subjectivity and bias, built into the framework of the research itself, is not deceitful in the way that covert bias could be. Halliday (2002) adopts the position that in social science research reported meaning can never be free from the interpretations of the observer. Griffiths (1998, cited in Halliday, 2002) makes an even more strident argument. She adheres to the principle that neutrality is unattainable in social science research, and that it is not worthwhile to strive for objectivity. Rather, Griffiths suggests, researchers are advised to openly state their biases and conduct research within this context, thus liberating any subjectivity from its covert hiding place. In keeping with a tradition of transparency, the *Discussion* chapter (*Chapter 8*) of this thesis explicitly chronicles the students' and my role as active participants in the study. Furthermore, analysis of findings will reveal my interpretations as a researcher, and how I came to any conclusions. It will be left to the reader to determine if such biases were adequately acknowledged and if they favorably or negatively influenced any knowledge claims.

4.2.3 Flexibility

Action research typically incorporates cyclical iterations of reflecting, planning, acting, and observing (**Figure 4.1**).
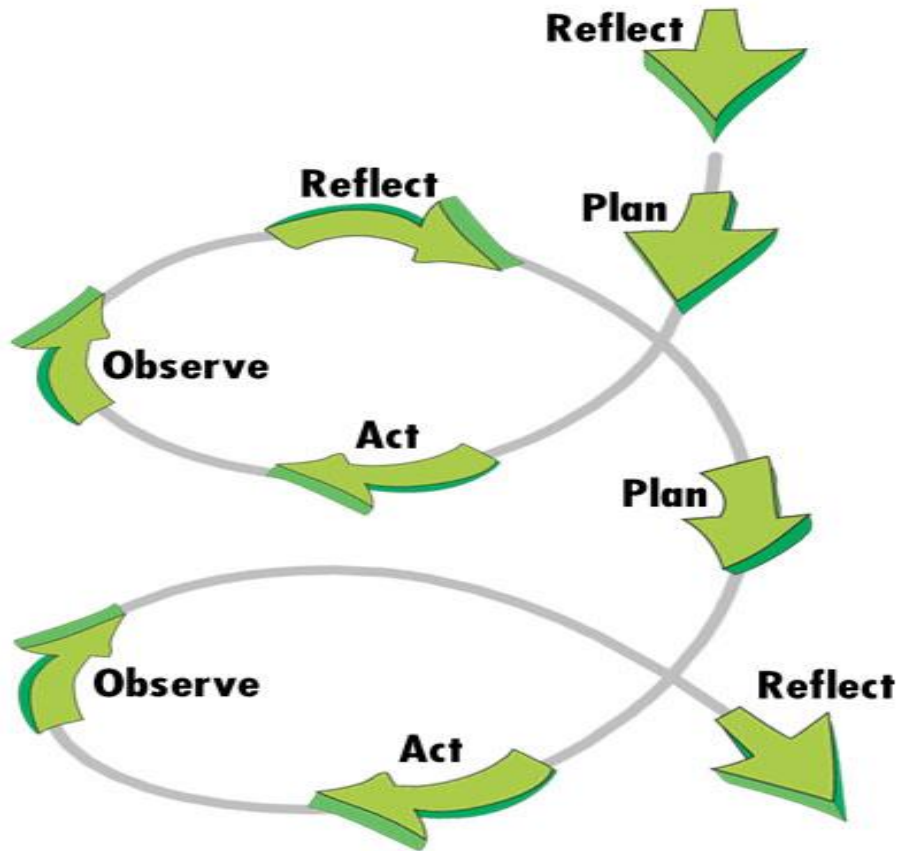
Figure 4.1 **Action research cycle (Center for Education Innovation, n.d.)**

This research is a snapshot of two distinct cycles of planning, implementation, and reflecting, and it represents a multi-cycle investigative process. Unlike experimental or observational research, whereby discrete phenomena are often singularly investigated, this study demanded an approach that allowed for subsequent steps of enquiry that could evolve from prior iterations. As such, the cycles of enquiry, subsequently delineated in *Chapter 5,* set the stage for the implementation of curricular PFR that is currently on-going. As investigation occurred in situ, student and investigator experiences evolved along the course of several academic terms. Adherence to an

unalterable script, therefore, would have hampered any necessary modifications to the intervention or the data collection techniques.

A flexible approach, for which I have advocated, is emblematic of action research itself. When Lewin (1946) first popularized the technique, he meant for inherent processes to be altered, midstream, to suit the needs of a given study. It is worth noting that changes are not made haphazardly; rather, they are the result of 'action logics.' Action logics, described by Reason and Torbert (2001), are characterized by the cyclical actions of investigating, planning for action, eliciting action, and reflecting upon the outcomes of that action. Per Torbert (2004), changes are proposed consequent to the reflective phase, and the cycle continues; or, as Torbert suggests, individuals develop new 'action logics' as they mature. Reason and Torbert (2001) describe the process of action logics as making meaning of the world through the enactment of the four territories of experience: intentions, plans, actions, and outcomes. It is only action research that allows for such flexibility of practice and cultivates meaning making in this way. It is, therefore, well suited to the aims of this study.

4.2.4 Reflection

This study required students to engage in peer-facilitated discussion, with participants reflecting collectively on their own experiences from the classroom and the clinical environment. As the principal investigator, I, too, was required to reflect upon the research processes, mainly for the purposes of implementing change. Schon (1983), in his seminal work on reflection, emphatically asserts that all reflection should be geared toward eliciting altered action or change. It was paramount, therefore, that a research paradigm that embraced reflective practice was used.

It could be argued that reflective practice itself is a specific dimension of action research (Coghlan & Brannick, 2010), as researchers must regularly reflect upon and challenge their epistemic biases, and, in turn, adjust methodology according to new insights (Johnson & Duberley, 2000). Moreover, since action research itself is concerned with generating change, a case could be made that reflection is situated as the cornerstone

of action research. Irrespective of which concept is subsumed by the other, what is important is that action research is well aligned with the reflective components of this particular study.

As has been shown, action research is ideally suited for conducting an investigation of this nature. It is interpretivist, relying on the subjective experiences of investigator and participants. It is geared toward enquiry and change from within. It is participatory and democratic. It is flexible, allowing for new action planning as needed. And it is rooted in concepts of reflective practice, the cornerstone of this research. Moreover, it is obvious to see how alternate methodologies, such as those grounded in positivism, would have been inadequate. A positivist approach, for instance, would not have been adaptable to or flexible enough for the insider research undertaken in the classroom, nor would it have allowed for the democratic influence of both the participants and the investigator. Furthermore, positivist methodologies lack the flexibility afforded by interpretivist approaches, such as action research, as their objective nature is incongruous with reflective practice.

With the attributes of action research well established, the next concern was to determine how best to carry out the research and test the hypothesis. What was needed was a workable framework for enquiry. Critical incident analysis offered just such a means.

4.3 History of critical incident analysis

First coined as 'critical incident technique' by organizational psychologist John Flanagan, who was looking for ways to improve the abilities of air force pilots, critical incident analysis (CIA) has revealed itself as a useful tool in organizational analysis and planning. As with action research, CIA is both flexible and adaptable, making it suitable for workplace investigation and planning (Butterfield, Borgen, Amundson, & Maglio, 2005). It has been employed to determine effective organizational approaches and applications, describe behaviors or problems, and examine aspects of events or

activities that lead to success or failure (Flanagan, 1954). Much like action research, CIA relies on cycles of planning, implementing, and reflecting; through which individuals within organizations reflect upon events, develop plans to improve responses to those events, and subsequently implement the plans (Schluter, Seaton, & Chaboyer, 2008).

Critical incident analysis' reliance on reflection is particularly germane, as reflection has been linked to professional development (Vachon & LeBlanc, 2011). Critical incidents have been shown to strongly influence reflective practice, as meta-cognitive processes are stimulated by thinking about significant or meaningful events (Brockbank & McGill, 1998). As Graham (1995) mentions, the individual can draw upon meaningful experiences to direct new learning. Essentially, it is easier to think about something significant rather than a mundane occurrence. Thus, the critical incident was selected as a useful prompt for student reflection in this study.

Critical incident analysis has gained widespread use as a means to improve practice within several professional fields (Butterfield, et al., 2005). Remarkably, Flanagan's original article is one of the most frequently cited by industrial and organizational psychologists (Anderson & Wilson, 1997). It is worth noting that despite its popularity in organizational research and planning, CIA has witnessed minimal application in educational settings (Vianden, 2012), though no evidence seems to preclude its use.

4.4 Application of critical incident analysis

Critical incident analysis has witnessed manifold permutations across disciplines. Schluter, Seaton, and Chaboyer (2008) delineate a series of steps for the researcher conducting CIA in the healthcare arena. The authors' recommendations have been purposefully adapted for this research. These steps are outlined in **Figure 4.2.**

Define the critical incident	→	Share & reflect upon the incident	→	Devise an action plan
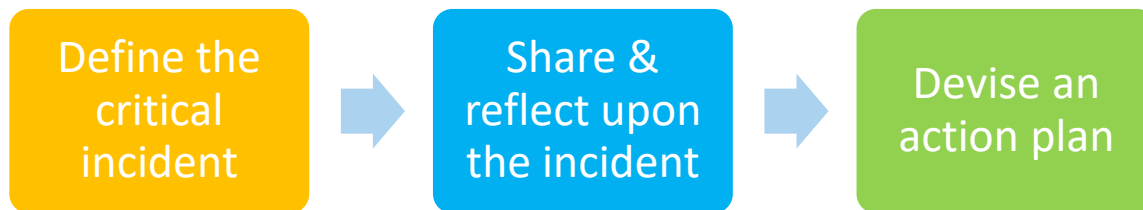
Figure 4.2 **Process of critical incident analysis**

(Schluter, Seaton, & Chaboyer, 2008)

The authors state that prior to conducting CIA, the researcher must first define what types of events will constitute critical incidents. Flanagan (1954) himself described a critical incident as an event that is emotionally significant to the individual, which includes both positively and negatively evocative occurrences (Clark and Friedman, 1992; Halpern, Maunder, Schwarz, & Gurevich, 2011; Pups, Weyker, & Rodgers, 1997). In clinical practice, a critical incident may be a particularly difficult clinical problem or an event in which the welfare of a patient is at stake (Dykalski & Lane, 2014). In education, critical incidents might involve work that students find formidable or situations that challenge their assumptions (Monash University, 2007).

The next steps of CIA require participants to share and reflect upon the incidents they experienced, and to subsequently develop actionable plans aimed to address future similar incidents (Schluter, Seaton, and Chaboyer, 2008). A variety of options for these two steps are available to the researcher, such as: journal writing and portfolios, questionnaires, one-on-one interviews, and group discussions.

The disadvantages of journaling and portfolio writing have been previously discussed. The reader is advised to revisit *Chapter 3 f*or an explication of their shortcomings.

Questionnaires, though a less popular form of reflection, are useful for surveying a large group of people. They are not necessarily appropriate in a small setting. Questionnaires, by their nature, may limit the scope of participants' responses; a disadvantage not outweighed by the number of respondents, particularly in a small

group (Blaxter, Hughes, & Tight, 2010). Nonetheless, questionnaires were utilized for some of the data collection in this research, as they were a useful means through which to anonymously gather information.

One-on-one critical incident interviews are advantageous in that interviewee affect and behavior can be as revealing as dialogue (Opdenakker, 2006). But this advantage is also available in a group setting. A primary drawback to one-on-one interviews in the reflective phase of enquiry is that the interviewer may inadvertently guide subject responses. Since the researcher could be perceived as an authoritative figure, the participant may provide answers he or she assumes the researcher wants to hear, thus obfuscating the true sentiments of the individual (Opdenakker, 2006). Despite these drawbacks, one-on-one interviews were conducted for part of the data collection in this research; though they were discontinued for reasons described in *Chapter 6*.

Schluter, Seaton, and Chaboyer (2008) advocate for reflective discussions over other modes of enquiry. Perry (1997) asserts that comparing subjects' comments about similar events contributes to a greater understanding of those events. Furthermore, Schluter, Seaton, and Chaboyer (2008) contend that reflective discussions align well with the oral traditions of the nursing profession. I would argue that similar traditions exist within all healthcare disciplines, and that verbal exchanges would work equally as well for PTA students as they would for nurses.

Reflective discussions are not without their challenges. They must be guided, stress Williams and Walker, (2003), as issues of trust, safety, and commitment may arise (Pierson, 1998). Rous and McCormack (2006) advocate for a line of questioning that asks the individual to share details of the incident, to describe what contributed to the event, to discuss and analyze outcomes, and to consider alternative approaches to addressing a similar occurrence in the future. This study has drawn upon a framework embedded in these ideals.

4.5 Summary

This chapter introduced two interpretivist approaches through which this research was conducted: action research and critical incident analysis. An argument was presented in favor of their utilization. Action research possesses the attributes of being suitable for intra-organizational study, as it is participatory and democratic, it embodies flexibility, and it relies on critical reflection to make decisions. Critical incident analysis is a technique well coupled with action research, in that it relies on cyclical iterations of implementing, planning, and reflecting, much in the way action research does. Furthermore, it is a methodology geared for purposeful organizational change. The following chapter details the specific adaptation of critical incident analysis within the action research model, with study methods subsequently delineated and described.

5 Study Design

This research examined the role of peer-facilitated reflection (PFR) as a means to foster the development of critical incident coping mechanisms in physical therapist assistant (PTA) students. Students are challenged with cultivating critical thinking abilities that will better enable them to confront the difficulties of academic and clinical work. Reflective practice has been shown to effectively enhance those abilities. In previous chapters, an argument was extended that PFR could offer a meaningful alternative to more traditionally employed reflective practice methods. I have submitted that PFR will give rise to more effective coping abilities in the face of critical incidents, effectively narrowing the gap between reflective theory and practice. This hypothesis is put to the test. Additionally, I have identified issues related to the facilitation and assessment of student reflection. These operational aspects are closely examined. This chapter outlines the research framework, research setting, a general overview of sampling and recruitment, ethical considerations related to the study, implementation of reflective discussions, and data analysis techniques.

5.1 Framework of enquiry

Two separate rounds of student reflective practice discussions were implemented between October 2015 and May 2017, each representing an iteration of an action research cycle. These iterations are identified, henceforth, as Cycle I and Cycle II. Implementation of each cycle is presented in detail in subsequent chapters.

The research was modeled on the work of select scholars who undertook investigation into PFR. Most notable of these were Delany and Watkin (2009), Tsang (2011a), and Walker, et al. (2013), who incorporated analysis of critical incidents into group reflective discussions; Panadero and Monereo (2013), whose questioning and assessment models were adapted for this study; and Hudson and Hunter (2014), who implemented

PFR into a classroom setting. Details of these authors' research can be found by revisiting *Chapter 3*.

5.2 Research setting

Research was conducted in the Physical Therapist Assistant (PTA) Department of Sacramento City College where the principal investigator is employed as department chair. Physical therapist assistant programs in the US culminate in an associate degree, and typically comprise two academic years (Commission on Accreditation in Physical Therapy Education, 2016). Program coursework includes anatomy and physiology, kinesiology, data collection, therapeutic interventions, and medical ethics. Students participate in three clinical rotations: one during the spring semester of the first academic year, and one each in the fall and spring semesters of the second academic year.

Reflection and critical thinking skills are embedded in course curricula and are threaded throughout the program via written reflective activities. For instance, during each of three clinical practicums, students engage in weekly online discussions that require reflection upon and descriptions of their learning experiences. Discussions are prompted with specific questions, and topics include challenges and successes encountered, areas of strength and weaknesses, and ideas for future personal development. Students also submit a written assignment as part of a community service project whereby they reflect upon personal learning and growth arising from participation in physical therapy related volunteer work. None of these assignments, however, directly require peer-to-peer action planning, nor do they demand reflection on the reflective process itself; characteristics of PFR implemented for this research.

5.3 Sampling and recruitment

Participant recruitment utilized purposive sampling, an approach that selects subjects based upon identifiable characteristics that may be best suited to a particular study (Blaxter, Hughes, & Tight, 2010). For this research, all participants were recruited from

the Sacramento City College Physical Therapist Assistant program. Participants were members of the PTA graduating classes of 2016 and 2018, respectively. Participants only engaged in reflective discussions with members of their own cohort. Timing and logistical reasons resultant to procedural changes between cycles precluded involvement by members of the Class of 2017.

Recruitment strategies were not wholly consistent for each participating cohort. This was a consequence of changes deemed necessary through action planning between cycles. For instance, participation in reflective discussions and post-reflective interviews was voluntary for Cycle I (PTA Class of 2016); however, for Cycle II (PTA Class of 2018), participation in reflective discussions was a curricular requirement. Cycle II students also completed a reflective essay following the group discussions (Appendix J). Submitted essays were not used for data in this research; rather, students who opted to volunteer submitted post-reflective questionnaires. An explanation of the rationale for the various recruitment approaches are offered in *Chapters 6 and 7*, each associated with a PFR cycle.

5.4 Ethical considerations

This research was approved by the University of Liverpool Virtual Programme Research Ethics Committee (*Appendices M & N*),[1] as well as by the Sacramento City College Department of Planning, Research, and Institutional Effectiveness (*Appendices O & P*),[2] Two sets of approvals from each agency reflect changes in research protocols from Cycle I to Cycle II. These changes are described in detail in *Chapters 6 and 7*. As the research involved human subjects, it was necessary to account for issues of privacy, confidentiality, data security, and any positive or negative consequences that may have

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[1] Appendix M is the Cycle I University of Liverpool approval; Appendix N is the Cycle II University of Liverpool approval

[2] Appendix O is the Cycle I Sacramento City College approval; Appendix P is the Cycle II Sacramento City College approval

emerged as a result of participating in the study. The following sections describe the steps undertaken to ensure these protections were in place.

5.4.1 Informed consent

Participation in this research project was voluntary. For those who opted to participate in the study, a Participant Information Sheet (*Appendices C & D*),[3] was provided. This document outlined the purpose, requirements, and potential benefits and drawbacks of participating in the study. Students who agreed to participate signed a Participant Consent Form (*Appendices E & F*),[4] but only after having at least five days to first review the Participant Information Sheet. This allowed for adequate time to process information contained in the document and to seek clarity, if needed. Furthermore, this protocol was mandated by the University of Liverpool Virtual Programme Research Ethics Committee. Participants were made aware of their rights to withdraw from the study at any time without fear of reprisal or negative consequences. Participants were also notified that they would receive no gifts or compensation, nor would their grades benefit from partaking in the study. Different Participant Information Sheets and Participant Consent Forms reflected changes in the research protocols from Cycle I to Cylce II. Details of these changes are outlined in *Chapters 6 and 7*.

5.4.2 Privacy and confidentiality

Privacy has been assured throughout this research by avoiding the use of names or identifying characteristics of the study participants. Participant names and contact information have been anonymized, with each participant assigned a participant code, made up of a 'class designator' and a randomly assigned 'participant number.' For instance, the third randomly assigned participant from the class of 2016 is referred to throughout the study write-up as 'Student 16-3.' Though actual participant names were used during the group discussion and the interviews in Cycle I (refer to the *Chapter 6* for further details), names were transcribed using participant codes. For Cycle II, participant

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[3] Appendix C is the Cycle I Participant Information Sheet Appendix D is the Cycle II Participant Information Sheet
[4] Appendix E is the Cycle I Participant Consent Form; Appendix F is the Cycle II Participant Consent Form

questionnaires were collected by a clerk in the Division of Science and Allied Health and anonymized before submission to the principal investigator.

During pre-discussion briefing, participants were instructed to maintain confidentiality during and after the course of this study. Names and events were not to be shared with others, nor were participants to engage in conversation with one another about the nature or events of the discussions. Participants were reminded that as students of the PTA program, they were obligated to strictly abide by provisions outlined in the Health Insurance Portability and Accountability Act (US Department of Health & Human Services, n.d.), which forbids disclosure of any information regarding patients with whom they may have interacted, without the expressed consent of the patient him/herself.

All discussions were held in a classroom of the Division of Science and Allied Health at Sacramento City College. Classrooms were secured from the inside to safeguard against interruptions and to assure the privacy of all participants.

5.4.3 Data security

Electronic research data has been securely maintained on password protected external hard drives in a locked filing cabinet and will be maintained for at least five years after the conclusion of this study, after which time it will be erased. No data has been stored on public computers. Paper data has been securely maintained in a locked filing cabinet in the principal investigator's office and will be maintained for at least five years after the conclusion of this study, after which time it will be shredded.

5.4.4 Consequences of research

Participants were apprised of the potential consequences of the research. Most notably, participants were informed that they may benefit from engaging in reflective practice, as it might improve their approaches to coping with critical incidents encountered in the program. Additionally, future cohorts of PTA students could benefit from curricular or teaching enhancements realized as a consequence of the research. Few negative

repercussions were anticipated; the most significant being that participants might have experienced anxiety or embarrassment during group discussions when asked to reflect on their educational experiences. Though the principal investigator made every effort to ensure the privacy and confidentiality of all study participants, no guarantee could be made that participants would adhere to the same standards. The participant information sheets (*Appendices C & D*) informed potential study subjects of this possible consequence. Participants were reminded that they could withdraw from the study at any time if they felt uncomfortable. Furthermore, participants were instructed to seek counseling should the outcome of the discussions contribute to excessive emotional distress.

5.5 Reflective discussion framework

Two separate cycles of PFR were conducted from Fall 2015 through Spring 2017 with cohorts from the PTA graduating classes of 2016 and 2018. Students from the Class of 2016 engaged in one peer-reflective discussion in the Fall 2015 semester (Cycle I). Students from the Class of 2018 engaged in two peer-reflective discussions in the Spring 2017 (Cycle II) semester. **Table 5.1** displays each of the discussion cycles.

Table 5.1 Action Research Discussion Cycles

Reflective Discussion Cycles	Cohort	Semester	Number of Discussions
Cycle I	Class of 2016	Fall 2015	1
Cycle II	Class of 2018	Spring 2017	2

Keeping true to the action research methodology, protocols and action plans were modified for each reflective discussion cycle based upon analysis of data from previous cycles. Specific protocols for each cycle are described in detail in *Chapters 6 and 7*, each identified by the applicable cycle.

5.6 Implementation of peer-facilitated reflection

As previously mentioned, this study drew upon a multiplicity of scholars' work who have conducted research into PFR in both healthcare and educational settings (Delany & Watkin, 2007; Hudson & Hunter, 2014; Platzer, Blake, & Ashord, 2000; Tsang, 2011a; Wainwright, et al., 2010; Walker, et al., 2013). Most notably, the 'learning circle' framework, tested by Walker, et al. (2013) guided the discussion approach for this study. The authors described the learning circle as a collection of individuals who share similar professional attributes engaging in reflective discussion. Participants first individually recounted stories about critical incidents they experienced during the course of work. This was followed by a reflective and strategizing session aimed at producing actionable plans to better cope with such incidents.

Participants shared and reflected upon critical incidents encountered in either academic or clinical settings, and collectively developed action plans accordingly. The discussions included four phases: sharing a narrative, questioning the narrator, reflecting on the narration, and developing action items. This format was consistent for all cycles. **Figure 5.1** illustrates the sequence of steps in the reflective discussion.

This process repeated itself for each participant.
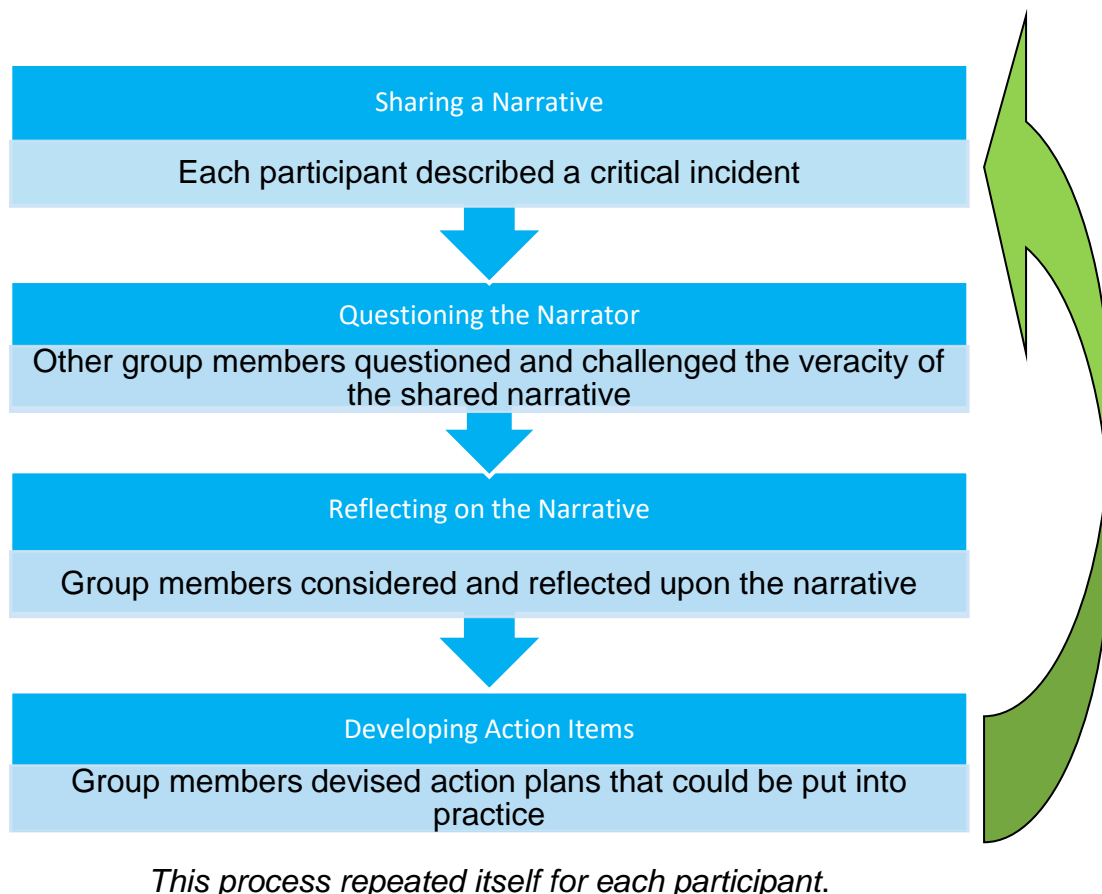
Figure 5.1 **Reflective discussion steps**

5.6.1.1 Sharing a narrative

One-at-a-time, each student participant, herein designated the 'narrator,' shared a narrative about a critical incident[5] that he/she had experienced during the academic program. The narrator was subsequently asked a series of questions by either the facilitator[6] (Cycle I) or by his or her peers[7] (Cycle II) about the critical incident. Questions were adapted from a line of enquiry drawn from Panadero and Monereo (2013), which sought to investigate the nature of critical incidents between higher education teachers and students. Though the focus of that study differed greatly from

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[5] The term 'significant event' was used in place of 'critical incident' for student instructions. This modification was in response to comments from the SCC PRIE committee that approved the research, deeming 'significant event' a more neutral term, less likely to connote negativity. The terms 'significant event' and 'critical incident' are used interchangeably throughout this thesis.

[6] During Cycle I, the principal investigator acted as the discussion facilitator. Discussion details can be found in Chapter 6.

[7] Cycle II discussions were student-led, with no faculty presence. Discussion details can be found in Chapter 7.

this research, the questions were well suited to critical incident analysis, and were thus appropriated for the group discussions.

The line of questioning was geared toward extracting information about critical incidents that the narrator may have experienced, as well as encouraging participant self-reflection. Questions, though adapted from Panadero and Monereo (2013), were consonant with a classification of reflective enquiry developed by Edgar Schein (1999, 2009). Schein proposed that questioning can be constructed to hierarchically facilitate reflection, beginning with those questions that prompt the reflective practitioner to recall or describe events, and progressing toward those that encourage deeper analysis.

The initial questions posed to the narrator fall under Schein's typology as 'pure inquiry,' where the investigator simply asks 'what happened?' or 'what is going on?' At this initial step, it is argued that reflection occurs only at a fundamental level; that which involves recall or description (Schon, 1983). The questions were:

- *Has any significantly negative[8] event happened in class, lab, or clinic during the course of the PTA program that has made an impact on your learning?*
- *What exactly happened?*

Subsequent questioning was scaffolded in such a way as to facilitate participant understanding of the incident. As critical incidents, by their nature, are emotionally charged events (Clark and Friedman, 1992; Halpern, et al., 2011; Pups, et al., 1997), the narrator was accordingly prompted to consider if and how he or she responded emotionally. The following three questions represent Schein's (1999, 2009) 'diagnostic inquiry,' through which accounts are analyzed for their emotional responses, reasoning, and subsequent actions.

- *What did you think?*

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[8] For Cycle II discussions, the word 'negative' was omitted from the instructions. This was based upon feedback from Cycle I participants and is rationalized in *Section 6.6.5*.

- *What did you feel?*
- *How did you react?*

Once the student had been able recognize the response and elevate it to a level of overt consciousness, he or she was next tasked with attempting to describe any underlying meaning behind the incident by responding to the question:

- *What do you believe is the origin of this significant incident?*

This question was crucial to the reflective process, as it required the participant to emerge from a process of simply recounting events and emotions to one of developing personal meaning from the incident itself. This sort of thoughtful evolution has been described by Schein (1999, 2009) as 'confrontive inquiry,' wherein the participant's thinking evolves from being descriptive and unproductive toward that of 'confronting' the issue. Thinking is thus characterized by creativity and criticality. Once the individual has reached this stage of reflective thinking, he or she is ready to plan for action, a necessary component of the reflective paradigm established by Donald Schon (1983). Subsequent questions encouraged the consideration of possible action plans:

- *If faced with a similar situation in the future, how do you think you would feel?*
- *How do you think you would react?*
- *What decisions would you take?*

5.6.1.2 Questioning the narrator

Following the shared narrative, group members, in turn, questioned the narrator about his or her account of the critical incident. These questions were fashioned in such a way as to differentiate factual accounts of the critical incident from bias-based accounts. Williams and Walker (2003) warn that critical incidents may at first be revealed under a veil of subjectivity, as the individual's belief system inevitably prevails upon one's perceptions (Chenoweth, 1998). Thus, evidence presented as facts were challenged through a line of questioning which required the narrator to reflect upon and defend the veracity of his or her account. During the briefing process, students were provided with

an example of questioning strategies (*Appendix H*) so that they would understand how to best conduct an interrogation that could differentiate fact from bias.

5.6.1.3 Reflecting on the narration

In the next phase of the discussion, group members were instructed to reflect upon the narrator's responses to the questions. They were then tasked with offering their own perception of the shared account. Following this collective dialogue, each participant, including the narrator, was challenged to envision and share alternate strategies by which the narrator could have best overcome the difficulty presented by the critical incident.

5.6.1.4 Developing action items

Once strategies were shared, all participants were further encouraged to imagine how the situation might play out in actuality. The narrator was asked to consider the realities of the offered suggestions, and to comment on how he or she might integrate any or all of the suggestions into practice. This imaginative approach is pivotal to action planning (Ong, 2011). Throughout this process, participants documented shared ideas on a flip-chart[9] or a notepad[10] so that everyone could track how ideas were developing.

This process of sharing a narrative, questioning the narrator, reflecting on the narration, and developing action items is emblematic of Kolb's (1984) experiential learning cycle (**Figure 5.2**). The subsequent step would require participants to engage in what Kolb (1984) describes as 'experimentation,' whereby the action items are put into practice. This yields an iterative process, by which the practitioner then describes the new experience (with the new action plan in place), reflects on the experience to consider the efficacy of the action plan, and proposes new approaches, as needed.

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[9] A flip-chart was used to document action plans during the Cycle I discussion.
[10] Students documented action plans on notepads in Cycle II discussions.

Concrete Experience
(doing / having an experience)

Active Experimentation
(planning / trying out what you have learned)

Reflective Observation
(reviewing / reflecting on the experience)

Abstract Conceptualisation
(concluding / learning from the experience)
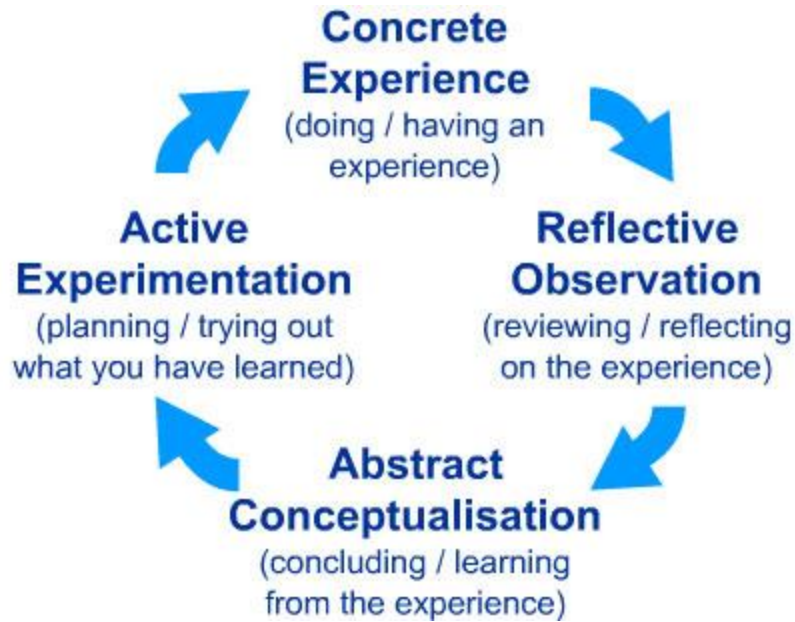
Figure 5.2 Kolb's (1984) **Experiential learning cycle**

At the conclusion of the group discussion, students were asked to be aware of any new critical incidents that might arise during the remainder of the semester, and to make note of how they responded to such incidents. Students were further instructed to reflect upon their responses to any incidents, and to attempt to make sense of how the reflection influenced their courses of action.

5.7 Data Collection and Analysis

Two primary data collection approaches were implemented. Different approaches were needed in response to analysis following each round of reflective discussions. Cycle I data was collected via post-discussion one-on-one interviews with each participant. Further details can be found in *Chapter 6.* Cycle II data was collected via post-discussion questionnaires. Details are outlined in *Chapter 7.* Data analysis also adopted two forms: thematic analysis of interview transcripts and questionnaires, and assessment of changes in reflective outcomes utilizing an adaptation of Panadero and

Monoreo's (2013) instrument. These are discussed in greater detail in the following sections.

5.7.1 Transcript and questionnaire reading and analysis

Data collection varied across the two action research cycles; however, analyses of findings adhered to common approaches. Specifically, analysis of interview transcripts and questionnaires were conducted via horizontal reading; a strategy recommended by Polit and Beck (2004). Horizontal reading involves a cross comparison of participants' perspectives of similar events. Although each participant experienced critical incidents unique to him or herself, all participants shared in the experience of the peer-reflective dialogue. For example, all responses to *question-one* in the interviews or questionnaires were first read for the purposes of comparative analysis. This was followed by reading and analyzing *question-two*, *question-three*, and so on. Consequently, participant perceptions of the shared event (the PFR discussion) could be more easily compared across responses, and emergent themes could be more readily identified. Additionally, as Tsang (2011a) cautions that segregated responses from individual questions may not fully encompass the totality of one's reflections, trans-item interpretation of individual interview transcripts and questionnaires was conducted. That way, if a participant response was incomplete or vague for a particular question or item but was addressed with greater clarity in another question or item, it would not be missed.

Thematic analysis was undertaken to identify common patterns or themes that emerged from the interviews and questionnaires. Thematic analysis has enjoyed widespread use as a valid means of analyzing qualitative data, as it affords researchers the ability to assign value to seemingly abstract elements (Blaxter, Hughes, & Tight, 2010; Bogden & Biklen, 2006; Cohen, Manion, & Morrison, 2011). Braun and Clarke (2006) describe a process of thematic analysis outlined in **Box 5.1**.

Box 5.1 **Braun & Clarke's (2006) Thematic Analysis**

1. **Familiarization with data**
2. **Generating initial codes**
3. **Searching for themes**
4. **Reviewing themes**
5. **Defining themes**
6. **Producing report**

Data was first prepared and analyzed through open coding, then via axial, or analytic, coding. Open coding involved jotting notes, queries, and observations in the margin adjacent to the transcribed dialogue. The appellative is derived from the notion that any transcribed item is 'open' to being a potential source of data (Merriam, 2009). Axial, or analytic, coding is an inductive process that requires interpretation of data bits. Key words or phrases were ascribed meaning through semantic association and clustered into common themes. Themes were subsequently compared and analyzed for similarities and differences across respondents using a framework analysis approach, described by Ritchie and Spencer (1994). This involved expressing data in grid-form to observe how patterns emerged. Relevant data was selected for its congruence with the purpose of the study. Unique and outlying data, or data that was inconsonant with the study goals, was discarded. Themes were categorized for conceptual congruency, meaning identified themes operated on the same conceptual levels; levels established a priori and tied to interview and questionnaire items. This approach facilitated comparisons across categories and allowed the saliency of each theme to be more easily recognized. Data was sorted so that all categories within a conceptual level were mutually exclusive, ensuring data bits were assigned to only a single category. Interpretations of data gleaned from the interview transcripts and questionnaires were used to inform subsequent iterations of PFR, and to respond to the research questions.

5.7.1.1 Confirmation of themes

Themes were confirmed using Leximancer (2017) text analysis software (Version 4), which identifies common concepts in text. Leximancer uses a proprietary algorithm to rank concepts by connectedness. This proved useful, as even though specific themes were identified through open and axial coding, the software helped confirm or disconfirm interpretations through identification of instances that a certain concept or term was voiced or written. The more instances that a concept or term was identified, the more likely its relevance to a particular theme.

It warrants clarification that certain concepts were found repeatedly throughout interview transcripts and questionnaires, and those concepts could sometimes be reconciled with different themes. For instance, Leximancer analysis located the concept 'helpful' a multitude of times. Interestingly, this concept informed different themes depending upon its context within interview transcripts or questionnaires. A participant may have described his or her specific action plan as being 'helpful' in problem-solving, but he or she may have also found the overall process of PFR to be 'helpful' for different reasons. The software, though useful in identifying the number of times 'helpful' appeared, was unable to distinguish the thematic context of the concept's application. This was where the horizontal reading, previously described, proved useful. The software helped to confirm the number of times a key concept or term arose, but then, through horizontal reading, the concept was manually cross-referenced with each interview question or questionnaire item for contextual congruency.

5.7.2 Reflective assessment model

An assessment instrument designed to examine changes in reflective outcomes was adapted from Panadero and Monereo's (2013) assessment model. The authors incorporated a five-level hierarchical scale to assess teachers' professional identity following exposure to a critical incident (*Appendix Q*). The authors' descriptive rubric assigned 'Levels of Professional Identity' to observed behavioral changes. This study's instrument was modified from the original to assess changes in practice after reflecting

on a critical incident. The term '*professional identity*' was replaced with '*changes in practice*' to better align with the research goals. The term '*changes in practice*' is, I believe, more appropriate than the commonly assessed '*reflective ability,*' as it signifies achievement of outcomes, whereas reflective ability is a nebulous concept that is arguably inscrutable (Eaton, 2016). A supplementary level – Level V – was added. This level describes the ability of the practitioner to ruminate on the reflective process itself and how it elicited knowledge generation; a characteristic of double-loop learning (Argyris & Schon, 1978), and one of the theoretical cornerstones of this research. The instrument can be found in *Appendix R*, with supplementary descriptions of each change in practice level; however, it is also included in **Table 5.2** as a convenience to the reader.

Table 5.2 **Levels of change in practice after reflecting on a critical incident**

Adapted from Panadero and Monoreo (2013)

Level	Variable	Change in practice
I	Critical incident occurrence	Awareness about the critical incident and its relevance
II	Reflection about the critical incident's impact	Change in student's discourse
III	New practices – coping strategies	Change in the usual coping strategies
IV	Learning from the critical incident	Awareness of the changes in conceptions and coping strategies
V	Learning from the reflective process	Awareness of the changes as a consequence of reflective practice

VI	Learning continuity over time	Changes are permanent in the conceptions and coping strategies

Student participants provided accounts of any revisions to ways of doing in post-discussion reflective interviews and questionnaires. These allowed students to comment on altered practice and to acknowledge if and how reflective practice contributed to those new strategies. Responses were analyzed and categorized according to the assessment model's hierarchical levels; higher levels indicating what might be considered to have deeper implications. For instance, achievement of Levels I – III revealed whether a student recognized a critical incident, could speak to the incident, and could make a practice change based upon that incident. Achievement of Levels IV and V, which identified what students learned from the critical incident, and what they learned from reflective practice itself, required the abilities to interpret and theorize the how and why of any transformations. Level VI identified the permanence of altered conceptions or coping strategies.

5.8 Summary

This chapter has described select methods implemented for conducting the study. The research setting has been established, and a rationale for the recruitment of subjects has been provided. The framework of the reflective discussions has been described. Issues of trust and ethics have been discussed and resolved. And collection and analysis of data has been delineated. The following two chapters present in detail the population sampling, recruitment efforts, PFR implementation, and data-collection methods for Cycles I and II. Both chapters conclude with an analysis of findings, which are used to guide action planning for subsequent cycles of PFR. A discussion follows these chapters, which re-visits the research questions proposed at the outset.

6 Cycle *I*

Cycle I of peer-facilitated reflection (PFR) occurred during the Fall 2015 Semester. It served as a pilot for the remainder of this research, as findings from this cycle generated the impetus for implementation of PFR into the PTA curriculum and informed decision making for subsequent practice iterations. This chapter outlines the sampling, recruitment, and implementation of Cycle I. Data collection techniques are described, and data is presented and analyzed.

6.1 Cycle I Sampling

Cycle I eligible participants were second-year students from the PTA class of 2016 at Sacramento City College. Second-year students were considered appropriate subjects for this cycle as they were deemed to be more likely than first-year students to have experienced critical incidents during their academic tenure, as second-year students could draw upon three semesters of academic and clinical experience to share during the reflective discussion, whereas first-year students could only have reflected upon a few weeks of experience. Additionally, the principal investigator was not teaching the second-year cohort of students while recruitment and data collection was underway. Accepting volunteers from this cohort, therefore, mitigated the potential for the manifestation of power differentials between students and faculty.

6.2 Cycle I Recruitment

Recruitment emails were distributed at the beginning of the fall semester by an administrative clerk of the Division of Science and Allied Health. *Appendix A* contains the content of the email.

Initially, participant recruitment was poor. During the first two weeks of recruitment, just three students volunteered for the study. No additional students volunteered in the subsequent two weeks. A pair of follow-up emails yielded two additional volunteers just before the recruitment closing period. Both mentioned that they had not seen the initial

recruitment email and were unaware of the study. Ultimately, there were five volunteers, a sample size considered adequate for a study of this nature. Additionally, recruitment strategies needed to take account of potential group attrition, so a smaller selection may have proved disadvantageous.

Qualified participants were selected on a first-come, first-served basis. **Box 6.1** outlines the selection criteria.

<div align="center">

Box 6.1 **Cycle I Selection Criteria**

</div>

> **Currently enrolled second-year students from the Physical Therapist Assistant Program**
>
> **Study participants were not in a cohort in which they were taught by the principal investigator during recruitment and data collection**
>
> **Voluntary participation – willingness to participate in the study for the duration of one academic semester**
>
> **Availability to participate in a 90-minute peer-facilitated reflection session during the Fall 2015 Academic Semester**
>
> **Willingness to be interviewed for approximately 15 – 20 minutes near the end of the Fall 2015 Academic Semester**

Volunteers were provided information about the study and were asked to sign a Participant Consent Form (*Appendix E*). Additional details about sampling, recruitment, and ethical considerations can be found in *Sections 5.3* and *5.4.1*.

6.3 Cycle I Implementation

A single reflective discussion was held in the Fall 2015 academic semester. Details of the implementation of PFR are presented below.

6.3.1 Group composition

Five second-year students from the PTA Class of 2016 volunteered for the study. Only the five participants and the principal investigator, who acted as the discussion facilitator and note-taker, were present. The discussion, with the consent of each participant, was audio recorded.

6.3.2 Introduction to reflective practice

Each student, prior to participation, was provided with a written outline (*Appendix G*) of the purpose, format and procedures of the research. Necessary definitions related to the research were provided, such as, '*what is a significant event*?'[11] and '*what is reflection*?' This document also provided examples of how reflective practice was valuable to them as students and future clinicians. Additionally, strategies for peer questioning were provided beforehand (*Appendix H*) so that participants would enter the discussion with a better sense of how to extract pertinent information from the narrator. Participants were afforded the opportunity to ask questions and seek clarification regarding any topics related to the discussion or the research. Prior to the group discussion, students were collectively briefed, once again, to ensure that all participants were operating within a common frame of knowledge. Students were further reminded to keep all aspects of the study confidential and to adhere to agreed-upon discussion etiquette guidelines outlined in the briefing materials.

During pre-discussion orientation, participants were asked to come prepared to share a significant event with their peers. Positive events were exempted from discussion, as one aim of the research was to help students learn to address academic and clinical challenges. Emotionally positive events, though important for learning, do not necessarily require the student to modify practice, whereas emotionally troublesome

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[11] The reader is reminded that for purposes of student instructions, the term 'significant event' replaced 'critical incident.' This was deemed more appropriate terminology by the Sacramento City College Department of Planning, Research, & Institutional Effectiveness; one of the agencies that approved this research. For all future references, the term 'significant event' is synonymous with 'critical incident.' However, the document may still refer to 'critical incidents,' as this is the term most widely used in the professional literature.

events might. The rationale is based upon the "unease" described by Dewey (1933, p. 379) that is often a progenitor of reflection. Therefore, students were instructed to share only negatively charged incidents. A definition of such an incident was provided to each student during the initial briefing (*Appendix G*).

6.3.3 Frequency and timing

Participants engaged in a single 95-minute reflective discussion during the 7th week of the 17-week Fall 2015 Semester. Mimicking Hudson and Hunter's (2014) protocol, only a single discussion was held. While other authors who have undertaken similar research have incorporated multiple group reflective session into their studies (Platzer, Blake, & Ashford, 2000a; Wainwright, et al., 2010; Walker, et al., 2013), most have been conducted in a work environment, where researchers had access to employees (study participants) for extended durations. In an academic setting, a faculty member typically interacts with his or her students for just one semester, potentially rendering multiple reflective discussions problematic or unfeasible. A single discussion was utilized not only to ascertain if PFR was a beneficial practice, but also to assess if just one discussion was adequate to meet this end.

6.3.4 Discussion format

The reflective discussion followed the protocol outlined in *Section 5.6.* Each student was randomly selected to act as the narrator and share a critical incident with his or her peers. This was followed by peer questioning, reflection on the narrative, and collective action planning; all with the guidance of the principal investigator. Action plans were written on a flip chart in view of all participants.

6.4 Cycle I Data Collection

Post-discussion one-on-one interviews were conducted in the final week of the Fall 2015 Semester and sought to glean student perceptions on the effectiveness of the process, as well as to generate recommendations for future implementation of PFR. Interviews occurred 10 weeks after the discussion, allowing participants adequate time

to implement and reflect on the efficacy of their action plans. Individual, as opposed to group interviews, were favored, as to avoid any social influence on participant responses (Robinson, 1993). Furthermore, individual interviews align with the 'romantic' view described by Dingwall (1997); that which allows for a level of closeness that begets authentic responses. This could not have been achieved in a group setting.

Interviews lasted between 14 and 20 minutes, and were semi-structured, allowing for dialogue that did not adhere to a rigid script. Semi-structured interviews are advantageous in that they facilitate the production of knowledge through a more mutual interaction of participants (Holstein & Gubrium, 2004), and that they generate data that is salient to the interviewee (Barbour, 2008). Holstein and Gubrium (2004) contend that such interviews effectively cultivate a more organic exchange of ideas, which could not as readily occur with a rigid interview structure. The authors (2004, p. 40) further stress that semi-structured interviews represent "collaborative accomplishments" of those involved. In such formats, participant bias is revealed as part of knowledge construction. Though the dissemination of empirical data is valued, it shares equal footing with subjective accounts. This approach aligns well with the participatory nature of action research, as any understanding of the efficacy of PFR relied on reciprocal discourse, rather than simple questions and answers.

Though the semi-structured model of interviewing allowed for flexible dialogue, an interview schedule was established to ensure questioning remained focused and that necessary data was gleaned from the process. The interview schedule can be found in *Appendix I.*

The Cycle I reflective discussion and interviews were recorded with the consent of all participants. All recordings were transcribed by an administrative clerk. It has been argued that self-transcription contributes to value-laden decisions about the reconstruction of dialogue (Shukauskaite, 2012). Nonetheless, I opted to rely on a third party for transcription. This was to avoid the risk of becoming too embroiled in listening to and recording dialogue, such that my interpretive abilities might suffer. Interview

transcription favored a 'denaturalized' method, whereby "idiosyncratic elements of speech are removed" (Oliver, Serovich, & Mason, 2005, pp. 1273-1274). This approach differed from the more common 'naturalist' approach to transcription, in that emphasis was placed upon the perception of meaning ascribed to the dialogue, as opposed to taking a literal account of every utterance (Davidson, 2009). Denaturalized transcription, Oliver, et al. (2005) contend, is well suited to critical discourse analysis.

6.5 Cycle I Findings

Discussion and interview data is presented in the following sections and is used to inform subsequent cycles of PFR. For the most part, data is presented in tabular form, with themes contextualized to interview questions and reflective discussion observations. The primary theme is presented in each left-most column with common terms and concepts supporting that theme listed in order of frequency. Specific students linked to each theme are identified, followed by a percentage based upon the sample population. The number of instances a certain concept was identified by the Leximancer text analysis software, as it related to that particular theme, is also presented. Where appropriate and necessary, data is presented in narrative form. Themes are instantiated through correlation with specific student comments or with the observations of the principal investigator. With occasional exceptions, Cycle II data presentation (*Chapter 7*) consistently adheres to this format.

6.5.1 Cycle I student impressions of PFR

In the post-discussion interview, students were asked to share their impressions of PFR. The five students who participated all reported a positive experience. Specifically, comments indicated that PFR was generally helpful, they were buoyed by feelings of openness with their peers, and they took encouragement from sharing similar issues in such a way that minimized any sense of isolation related to their critical incidents. **Table 6.1** identifies the primary themes regarding student impressions of PFR.

Table 6.1 Cycle I student impressions of PFR

Theme	Student	Percent of Students	Instances
Helpful (helpful, beneficial, helps, helping, positive, good, better)	16-1; 16-2; 16-3; 16-4; 16-5	100%	39
Trust & openness (Open, candid, openly, trust, comfortable, honesty)	16-2; 16-3; 16-4; 16-5	80%	33
Similar issues/Camaraderie (similar, same, not alone, camaraderie, shared; together)	16-1; 16-3; 16-4	60%	13

6.5.1.1 Helpful

Each of the students shared that the reflective discussion was helpful, though helpful in ways unique to the individual. For instance, one revealed that simply sharing opinions was meaningful, while another recognized how the discussion generated useful ideas for solving future problems. Though the initial intent of the discussion was to stimulate action planning, some Cycle I participants found its value extended beyond that of pragmatism and touched into the realms of psychological nurturing.

Student 16-1*: It gives us a chance to get our opinions and voices heard. And other students can get involved with the helping issues*

Student 16-4: *I thought it was good. I think [it] may be somewhat psychologically helpful*

Student 16-5: *So, since the group discussion things have been going well. I think being in the group setting helps me just either reinforce some things that I already think. I think it had an influence later on helping me solve potential future problems. I mean, we came up with some pretty straightforward ideas and how many of those will actually be applied, who knows. But I do know that I thought we came up with a pretty good list.*

6.5.1.2 Trust and openness

Carter (2013) warns of vulnerability contributing to reticence during peer reflection. This, of course, was a potential concern heading into the discussion. However, the discussion itself was a generally convivial affair, notwithstanding the instructions to share negative critical incidents. There appeared to be good trust amongst group members, and this led to frequent episodes of laughter. Moreover, both my notes of the discussion itself and the shared perspectives of the students during the interviews confirmed the opinions of many scholars (Wessa & de Rycker, 2010; Williams & Walker, 2003; Wood & Kurzel, 2008) that participants tend to be less reserved and more candid in discussion with peers; notwithstanding my own presence. For instance, I encountered no reticence when each student narrated his or her critical incident. Rather, students were quite forthcoming in narrating their accounts. Students shared stories of the critical incidents in terms of how they communicated, their levels of responsibility, how the incidents influenced relationships, what they learned from the incidents, and their own responses to the problems they encountered. All but one student explicitly acknowledged finding value in the openness of the discussion.

Student 16-2*: It seemed like everyone was comfortable voicing their opinions and their concerns during the discussion.*

Student 16-3*: I think it was helpful in the sense of just being able to talk to it openly without any personal consequences.*

Student 16-4: *Well it's kind of an open discussion and it's kind of feeling that you had a place to share your grievances, for lack of a better word…I do think that [it was helpful] just knowing there is an open area for people to discuss it….*

6.5.1.3 Similar issues/Camaraderie

Three students related that they took solace in knowing that they were not alone with their struggles. Being able to hear about other students' experiences provided them with comfort and afforded them new insights. In many respects, being able to commiserate is evocative of the communities of practice described by Wenger (2011), whereby professionals, or in this case students, share ideas to solve common problems.

Student 16-1: *It made me feel like I wasn't the only person having issues, and that we were all kind of having the same issues. So it kind of felt like a little camaraderie, a little bit of like we're all going through the same thing together, and we all kind of have the same issues and we all kind of have the same ideas on how to fix it…*

Student 16-3: *And I found it very helpful just understanding where everybody else was. It was nice to know I wasn't alone in my feelings.*

Student 16-4: *It was interesting to me how so many people had actually similar issues and so… in a way it's like "Oh, we're not alone necessarily in how this feels."*

6.5.2 Cycle I utility of PFR

Participants were asked to comment on ways in which action plans generated during the reflective discussion were beneficial, if at all, to them. Though not every student found utility through action planning itself, all were able to recognize aspects of PFR that proved useful. **Table 6.2** displays common ways in which PFR was useful to Cycle I participants.

Table 6.2 Cycle I utility of PFR

Theme	Student	Percent of Students	Instances
Peer support (support, peer, classmates, helpful, helped)	16-1; 16-2; 16-3; 16-4, 16-5	100%	28
Awareness of responsibility (responsible, responsibility)	16-1; 16-2; 16-3; 16-5	80%	16
Alternate perspectives (alternate, different, feedback, perspectives, opinions, other)	16-2; 16-3; 16-5	60%	22
Communication (communication, communicate, talk, talked, talking, communicating, discussing)	16-1; 16-3; 16-5	60%	46
Courage/Confidence (courage, encouraged, confidence)	16-1; 16-3	40%	14

6.5.2.1 Peer support

Participants recognized the value of peer support dealing with critical incidents; something that most had not relied on prior to the discussion. For instance, four of the students shared critical incidents that involved some form of misunderstanding or disagreement with a faculty member or clinical instructor. Initially, some mentioned that they were fearful of approaching an authoritative figure. Yet, following the encouragement of their peers, most noted that their confidence grew, and they were subsequently able to initiate those discussions.

Student 16-3: *It was helpful in the sense that I did get good feedback from my classmates and from you as far as just going and trying to communicate what my issues were. Since our group discussion I have been talking with classmates and then I have been talking with other students that I've met with the clinical experience, and then just friends of mine that are master's degree students*

Student 16-5*: I think hearing the other voices in the group probably helped me just kind of say, "Okay, take a breath. Don't make this your life's work. Just get through the class, and then do what you can to help others."*

6.5.2.2 Self-responsibility

Four of the students acknowledged how PFR helped them realize the need to accept more personal responsibility, which, in turn, facilitated problem solving. Though none of the critical incidents were re-experienced by any of the participants, they were consequently able to identify alternate scenarios in which they needed to assume greater personal responsibility.

Student 16-1: *…Working on my communication and my end of things that I need to take care of, and sort of like blame the other people. I think I sort of took more responsibility and communicated better.*

Student 16-2: *I reflected on that, and I thought, "Y'know, maybe it's not all the teacher's fault. Maybe I need to take responsibility for some of the things I do." So, I mean, for me, I reflected on that and looked at ways I could improve myself in the class. To change either my time management, or my study habits, or my time management of me being with the teacher. I felt that by doing those things, it benefited me in getting a better grade this time around with this teacher.*

6.5.2.3 Alternate perspectives

Hearing what their classmates had to say helped three students alter their views regarding their respective critical incidents, acknowledging that bouncing ideas off one another was instrumental in either changing beliefs or reaffirming perspectives. They noted that peer feedback contributed to new ways of thinking that could be applied to future problem solving.

Student 16-2 viewed the discussion as instrumental in developing problem solving approaches.

> *I think it's important to talk to others who are going through some of the same issues that you're going through to get a different perspective on the problem that you're having; to help you solve the problem that you're having. And for me it helps to get another person's perspective.*

Student 16-3 found value in hearing classmates' feedback, and in collectively 'brainstorming' new ideas.

> *I did get good feedback from my classmates…[It] was helpful in the sense that I was able to hear how rational or irrational I was being in regards to the situation as a whole.*

> *I found it very helpful just as far as understanding where everybody else was. What other people's feelings were in the class and then having kind of that brainstorming session of how you could go about to fix it or approach it to change what needed to be changed as far as my certain incident was concerned.*

Student 16-5 noted how his own perspectives were altered by peer feedback.

> *For me, anyway, the result of our discussion as a group probably tempered me a little bit, and helped me to have a more long-range viewpoint of things.*

> *The benefit of the discussion was [it] just kind of resonated some areas where I needed some affirmation and maybe some areas where I could temper myself and have a little more tempered view.*

6.5.2.4 Communication

Discussion participants were astute enough to recognize how communication (or miscommunication) affected their abilities to overcome critical incidents. Participants reported making a more concerted effort to communicate better in times of conflict. Below are examples of how being more communicative helped students to mitigate or resolve issues.

> Student 16-3 (regarding tension with a faculty member): *Since then I was able to talk to the professor very openly, and it was a candid conversation.*

> Student 16-5 (regarding assignment grade): *Yes, I will say that in my case, the stuff I was dealing with, we had much quicker communication after everything was said and done. So I think it really did help later.*

6.5.2.5 Courage/Confidence

Two students reported that PFR gave them courage and confidence to address issues head-on; virtues that they acknowledge were lacking prior to the discussion.

> *Student 16-3: I have been able to communicate with people of authority, openly and honestly, while still being respectful…I was being confident and having courage and being able to communicate…I wasn't afraid to talk to this professor.*

Student 16-4: *I definitely had more confidence and more courage in standing up for things that I thought were unfair.*

6.5.3 Disutility of PFR

Interview questions sought not only to identify how PFR may have been helpful to students, but how it might have been unhelpful. Responses tended to indicate that all students found value in the process, even if, as acknowledged, they did not experience similar critical incidents following the reflective discussion. The disutility of PFR, if it can be described as such, revealed itself more through my own observations as the discussion facilitator. The difficulties lay not so much in the outcomes students reported (though one instance of a poor outcome was described), but rather in complications associated with the discussion process itself. For instance, I observed participants struggling to ask effective questions of their peers, and I was obligated to intercede when the discussion devolved into a venting session. These observations proved valuable in developing necessary modifications to subsequent iterations of reflective discussions. The following sections provide examples and observations of ways in which PFR lacked efficacy or utility.

6.5.3.1 Poor outcomes

Not all action plans were successful. One student (16-1) shared details of a failed attempt to improve communication with her clinical instructor. When she sought clarification about a certain diagnostic technique, taught differently in the program to what was observed in the clinic, the clinical instructor did not welcome the discussion. The student did acknowledge, however, that this failed communication attempt did not precipitate any negative fallout.

Student 16-1: *Yes, I did bring it up to them, and they were less than approachable about it – they just didn't accept it at all…So, I did talk to peers, but I talked to peers who didn't like to do it the correct way. I was kind of taking a real-time survey of why people do it that way. But it didn't help…I guess I really didn't get resolution.*

6.5.3.2 Absent and ineffective questioning

As individuals tend to create their own realities based upon biases and presuppositions (Argyris & Schon, 1978), participants needed to be challenged about those beliefs to generate useful insights. Consequently, group members' abilities to question the narrator about his or her shared account was essential to the efficacy of peer reflection. Initially, participants struggled to construct a line of questioning that confronted the assumptions of the narrator.

On several occasions during the narrative, when group members were expected to be listening, and during the questioning period, when group members were supposed to be actively querying the narrator about his or her critical incident account, peers instead offered advice to the narrator. This was understandable, as members wished to lend support to their classmates. However, such advice was often given prior to the reflective phase, when group members had not yet had a chance to fully assimilate the narration, nor had they had a chance to seek clarification through questioning.

Though these contributions to the discussion were helpful in the sense that participants felt less isolated about their concerns, they were detrimental in that questions went unasked of the narrator him/herself. This was problematic, as the purpose of the questioning was to challenge the narrator's perceptions and assumptions about the critical incident. Group members became distracted from their roles as interrogators, turning into storytellers instead.

Attentive facilitation, which is addressed in more detail in the subsequent section, helped guide the group toward asking the type of questions they should have been asking. Participants were able to respond to instruction and, following the later narratives, group questioning became more succinct, relevant, and focused. Yet, many lines of enquiry included primarily closed questions, requiring only a 'yes' or 'no' response; those that did not elicit deep reflection. Still, questioning was more effective in

clarifying the assumptions of the narrator. This was likely a consequence of practice and maturation, as well as regular redirecting by the facilitator. Examples follow:

>Question for Student 16-1 from Student 16-2: *Even though you didn't get as good a grade as you wanted to for how hard you worked on studying, do you think that you retained a lot of the information that you did study?*

>Question for Student 16-4 from Student 16-3: *For clarification purposes, during your practicals, do you feel like you're held to a higher standard than maybe your partners are?*

6.5.3.3 Venting

The anecdotes shared by the participants regularly devolved into complaining, or as a few students described it: "venting." This was understandable considering the similarity of narratives the students shared. Most of the critical incidents seemed to incite strong emotional reactions, not just from the narrators, but from all group members. Some participant's dialogue became trenchant; railing against one of the program's professors who was the focus of four of the five critical incidents. Two students were particularly strident in their criticisms.

>Student 16-4: *We're not going to get real assistance from the instructor who doesn't want us to succeed; who at least doesn't present it that way.*

>Student 16-5: *I've come to the conclusion that she really is a gatekeeper type of instructor. She's going to bar the way. She's going to be the obstacle. That's my impression after my own stuff with her.*

6.5.4 Cycle I reflective facilitation

To understand the role that facilitation played, findings were analyzed from both the interviews and my personal observations of the discussion. Reflective facilitation occurred during three distinct periods: prior to the reflective discussion, when

participants were introduced to reflective practice; in the discussion itself, when I acted as the discussion facilitator; and during the post-discussion interviews, when I guided students toward their own realizations of what reflective practice meant to them. Only the latter two aspects of reflective facilitation are addressed. Findings from these components do shed light on the introductory efforts made, even though there is no direct data generated from this aspect of reflective facilitation. Conclusions drawn from facilitation are difficult to instantiate, as there is no single event or comment that sums up facilitative efforts. Therefore, the following sections which reveal my own interpretations are presented in narrative form.

6.5.4.1 Discussion focus

The discussion itself was lively and conversational, but participants seemed to lack the contemplative reflective thought initially envisioned for this activity. As described, group members were quick to offer anecdotes or advice to the narrator even before they had asked any probing questions or had taken the opportunity to carefully consider the narrator's critical incident. These actions revealed a keen intent toward problem solving, but they failed to exemplify intentional reflective practice. Students also struggled to effectively question their peers, especially in the early phase of the discussion. Even when they began to ask questions, they initially failed to question the narrator in ways that challenged attendant biases and prompted further reflection. Murray, et al. (2011) warns that undisciplined group dynamics, including the sort of urgency to speak that was witnessed in this meeting, can derail discussions. It was during these periods that my role as a facilitator assumed its greatest importance. Carter (2013) speaks of a careful balancing act between supervisor and participant that helps maintain the structure and flow of a group discussion. I endeavored to abide by this advice, strictly adhering to the agreed-upon discussion structure. When the discussion veered off course, I could, without sounding threatening, chime in, "Remember, we are supposed to be talking about…" But I also found myself in the role of participant, asking questions, providing clarification, and offering advice when I deemed it appropriate. This generally occurred when group questioning was ineffective, when the discussion began to derail, or when I felt it was my duty to help students through the process of resolving their

critical incidents. At those times I considered myself an equal party in the discussion, judiciously removed from my role as the discussion facilitator. In the words of Carter (2013, p. 100), I became a "redundant participant."

The findings bear out the success of this approach. Recalling interview responses, students mentioned that my presence was necessary to maintain discussion focus. They were asked to comment on their perceptions of my presence as a discussion facilitator; specifically, whether my presence better enabled meaningful discussion, or whether, as a faculty member, I hindered candid dialogue. Responses generally indicated that my presence facilitated dialogue and helped maintain discussion focus.

> Student 16-2: *Oh, facilitated, definitely. Well, because you brought up some good topics or if we got off track you would bring us back and say "Well what about this?" But you didn't interject and try to change the way we were going even when we did start talking about that one specific teacher. So I don't think you hindered it in any way. And I think everyone was comfortable - It seemed like everyone was comfortable voicing their opinions and their concerns during the discussion.*

> Student 16-3: *I think your presence was – I don't think it hindered any dialogue. I think you kept bringing us back to the subject and helped us to focus on what the real issues were as opposed to just going off and ranting about our emotions and how upset we were regarding these different incidents or each person's experience. So, I wouldn't say that you hindered any open dialogue but I think your presence kind of allowed us to focus on what the whole discussion was about.*

Student 16-5 shared an interesting perspective:

> *I think if you weren't there it could just turn into a bitch-fest. And that wasn't going to be very productive.*

Though one student (16-1) conjectured that other students might have felt reluctant to share opinions and emotions in my presence, she personally held no such views.

> *Oh, I'm sure for some people it hindered dialogue but it probably kept us on track a little bit more. I feel super comfortable talking when you're there, so I didn't have an issue but I'm sure other people are kind of censoring themselves. But maybe it's probably good that we were.*

6.5.4.2 Interview facilitation

There was little evidence of deep reflection during the group discussion. This was not surprising, as the active verbal exchanges did not lend themselves to meaningful, contemplative thought. Reflection did occur, however, in one-on-one interviews, and it was arguably a direct result of facilitator intervention.

At the interviews, participants were asked about the outcomes they experienced consequent to the reflective discussion. They were, furthermore, encouraged to comment on their perceptions of the discussion process itself. This achieved two purposes: to gain insights into how to better improve future peer-reflective discussions, and to prompt the participants to consider how the discussion process influenced their own thinking and actions. The latter aim impelled students to reflect.

For example, one of the students, 16-5, revealed that the peer-reflective model particularly resonated with him, as he found the alternate perspectives offered by his classmates added clarity to his thinking.

> *I think being in the group setting helps me just either reinforce some things that I already think. Which is always the case for me, when I hear stuff I like "Oh, I think the same way, thank goodness it's not just me". But I actually heard some other things that kind of tempered my belief system*

> *and, y'know, because I can get very one-dimensional when I see*
> *something.*

This student's revelation emerged through deliberate questioning about what the group discussion meant to him. This level of reflection is illustrative of Argyris' and Schon's (1978) double-loop learning model, which requires thinking about one's own reflections and coming to terms with one's own values. Essentially, Student 16-5 was able to think not just about his critical incident and the actions he applied to resolve future incidents (single-loop learning), but also about how and why PFR worked within the context of his own belief and value system. Fortunately, the student found PFR to work well for him. If not, he might have needed to consider an alternate reflective model.

Though it is possible that Student 16-5 may have been able to independently consider the value of the adopted reflective approach (PFR), the interview undoubtedly aroused his reflections by inducing him to vocalize his thoughts. Speech, according to Dewey (1933), attaches meaning to abstract thoughts, and it reifies concepts. Moreover, the active interview approach, idealized by Holstein and Gubrium (1997), promotes the activation of the interviewee's thoughts and the construction of shared knowledge. During the student's interview, we collectively triggered his insights through dialogue. Furthermore, the vocalization of ideas, called 'thinking aloud' (Simmons, Lanuza, Fonteyn, Hicks, & Holm, 2003) enables the individual to tap into cognitive processes and promote critical thinking. According to Alvesson (2011, p. 15), "The interview subject has potentially much of value to say, but this calls for the researcher to actively lead or support that subject into intelligent talk." The evidence from this student's interview appears to support these views.

6.5.5 Cycle I discoveries about learning

Through individual interviews, and later through written questionnaires (Cycle II) participants were guided through a double-loop process (Argyris & Schon, 1978) that led them to consider not just the outcomes of the action plans generated in the group discussion, but their insights about the reflective process itself. In other words,

assessment examined reflection in terms of the students' own perceptions of what they learned and what they achieved. Those students who were able to achieve higher levels of reflection, as determined through the assessment model, were able to identify if and how PFR worked for them. The shared knowledge generated through the interviews was used to assign a level of 'change in practice' to each student based upon the instrument's rubric. This rubric served only to inform me – the faculty member – about practice changes as a consequence of reflection and was not employed for the purposes of assessing individual students themselves. A summary of data can be found in **Table 6.3**. Analysis of findings follows.

Table 6.3 **Discoveries about learning**

Theme	Instances	Student	Percent of Students
Awareness of the critical incident and its relevance	5	16-1; 16-2; 16-3; 16-4; 16-5	100%
Change in student's discourse	5	16-1; 16-2; 16-3; 16-4; 16-5	100%
Change in usual coping strategies	5	16-1; 16-2; 16-3; 16-4; 16-5	100%
Awareness of changes in conceptions & coping strategies	5	16-1; 16-2; 16-3; 16-4; 16-5	100%
Awareness of changes as a consequence of reflective practice	2	16-4; 16-5	40%

Changes are permanent in conceptions and coping strategies	0	Unable to assess	

6.5.5.1 Awareness of the critical incident and its relevance

All participants were able to reflect at this level. Each candidly described a critical incident, and why it was important. As mentioned in the previous sections, students were forthcoming, not just about their descriptions of the events, but about their emotions and reactions. This level of reflection requires only the ability to describe events and attend to one's emotions.

> Student 16-2: *Well, one that was big for me was bringing up some of my issues with my clinical instructor… I'm still a little leery of questioning a physical therapist as to the treatment they're doing and questioning them - or giving them my input if I think there may be a better way of doing something.*

6.5.5.2 Change in student's discourse

Each of the participants was able to relate a critical incident to their identity as a student. Moreover, all showed a willingness to engage in thoughtful discussion, albeit with facilitator guidance. They were willing to consider different perspectives, and even agreed to implement action plans proposed by their classmates.

> Student 16-1: *So the courage thing was, I think resonated with me. As well as the peer support. I agree with you - I agree with the analysis, there were a lot of kind of negative emotions.*

6.5.5.3 Changes in usual coping strategies

Evidence revealed that students all attempted different coping strategies with generally positive outcomes. All engaged in more proactive communication efforts, took greater self-responsibility, and most relied more on their peers for support and feedback.

> Student 16-3: *Since then I was able to talk to a professor very openly and it was a candid – granted it was via email – but it was a candid conversation just about – it was actually about clinical placement, so I wasn't afraid to talk to this professor.*

6.5.5.4 Awareness of changes in conceptions and coping strategies

Interviews exposed that participants were able to see how new conceptions and coping strategies afforded them the abilities to better deal with critical incidents that arose. Despite no student experiencing a similar critical incident from what was described at the group discussion, all were able to recognize the value in the coping strategies and apply them to different circumstances.

> Student 16-4: R*ealizing that there may be issues that emerge in life or in job or y'know even in the rest of the program that… you maybe can't change those, but you can certainly change how you deal with them, and I kind of get the purpose behind doing what we're doing coming up with how to deal with them.*

6.5.5.5 Awareness of changes as a consequence of reflective practice

Participants were asked about their perceptions of the reflective process itself, and if they had any recommendations for change. All participants expressed that they found the process helpful, though most offered no further details as to why PFR as a reflective approach was particularly useful for them. Admittedly, they had no other reflective models against which to compare it. Only two of the participants (Students 16-4 and 16-

5) seemed able to achieve this level of reflection. If it occurred with the other participants, it was not apparent.

Student 16-4 found the structure of the discussions more helpful than just a 'complaining session.'

> *Yeah well, I do think just knowing that there is that open area for people to discuss it in a way that's more – I'd say that it's a little bit more structured than just like a complaining session or something. It's been helpful knowing that is … there's like options of places to go instead of our issues of unfairness that will arise later on, I think that's helpful for managing stress.*

Student 16-5 was able to identify that the discussion format was personally effective. He reported that the group discussion had resonated with him, providing affirmation on some of his views, but tempering others. He shared that prior to this research he had regularly engaged in less-structured, isolated reflection, but never peer reflection. He was able to recognize that the peer-reflective model was most beneficial because of the alternate perspectives it provided. Consequently, he admitted that his approaches to problem solving had changed since the discussion.

> *I think being in the group setting helps me just either reinforce some things that I already think. Which is always the case for me, when I hear stuff I like "oh, I think the same way, thank goodness it's not just me". But I actually heard some other things that kind of tempered my belief system and, y'know, because I can get very one-dimensional when I see something.*

That only two participants were able to achieve this level of reflection should not be considered a failure. The ability to reflect on the process or think about one's thinking (double-loop learning) is a skill that may take years to master (Clouder, 2000b). That

student 16-5 was able to achieve this may have had something to do with his prior experience reflecting, as well as with his age; he was the oldest member of the group. This aligns with the views of Snowball, et al. (1994), who cite maturity as influencing reflective ability, and Burrows (1995) who suggests that deep reflection is not attainable under the age of 25. Interestingly, these views are in contrast to Chuan-Yuan, et al. (2013) who found no link between age and experience on reflective abilities.

6.5.5.6 Changes are permanent in conceptions and coping strategies

This level of change was impossible to assess. It can only be assessed by the individual over time. Participants were asked if they planned to continue reflecting and engaging in their new coping strategies. All were amenable, suggesting they have recognized the value in reflection. It is worth pointing out that one student agreed only if the setting was safe.

> Student 16-3: *Yeah, I would be very open to that. Especially because I feel like it helps you grow as an individual, so I feel like that would only kind of – as a professional – that would just help me grow even more. And you come across so many different types of people and personalities when you're working in the health field, I would be very open to having an open discussion like that amongst my peers and amongst my coworkers.*

> Student 16-4: *I'm a discusser…when possible. In the right safe setting, I could see myself liking something like that.*

6.5.6 Cycle I recommendations

Participants were asked during the one-on-one interviews if they had any recommendations to improve the process of PFR. Their responses are presented in **Table 6.4** and subsequently discussed. These recommendations were taken into account when determining future action planning for subsequent iterations of PFR.

Table 6.4 **Cycle I recommendations**

Theme	Instances	Student	Percent of Students
No graded reflection	4	16-1; 16-2; 16-3; 16-4	80%
More frequent discussions	2	16-2; 16-4	40%
Earlier implementation	2	16-2; 16-3	40%
More thorough introduction	2	16-2; 16-5	40%
Open topics	1	16-1	20%

6.5.6.1 Graded reflection

Students were asked if they felt that curricular reflection should be compulsory, yielding a grade. Their responses, though not unanimous, acknowledged the prevailing opinion that graded reflection may sully the process. In particular, the involuntary nature of graded reflection, participants expressed, could negatively influence their candor during a group discussion.

Student 16-3*: I might not be as open as I was before if there was a grade involved.*

Student 16-4*: Oh, I think the voluntary – I think it's better because that will attract students that might have something to say rather than someone*

> *who doesn't care. And - I don't know, I guess if the students don't care to participate then they might not have input but if there's a very small turn out for whatever reason, it not necessarily bad it could just be a different setting.*

One student, however, was open to graded reflection, opining that it may compel students into the practice.

> *Student 16-5: For some, probably. Y'know, the 80-20 rule. But I think sometimes we need to be kind of pushed into those things to get them done. So, I think it would – I don't see a problem with it. Especially if there's an issue in that particular class. Y'know, make it part of the process.*

6.5.6.2 More frequent or lengthy discussions

Though all Cycle I students reported positive outcomes from PFR, two students felt that more frequent or longer discussions would be particularly beneficial.

> Student 16-2: *Maybe more time? I know that the time was an issue, and most people don't want to stay there for longer, but I felt like we probably could have kept going on a few more things.*

> Student 16-4: *I wouldn't mind doing it twice a semester just to see kind of once early on and then once later on in the semester to see how things are going and if we were able to make any adjustments or improvements or something along those lines.*

6.5.6.3 Earlier implementation of PFR

Two students even wished a similar discussion had been held earlier in the program, as the knowledge gained from meeting with peers proved to be very useful in problem solving.

Student 16-2*: And I know that with, talking with some of the others afterwards, we came out of it feeling that if we had this information prior to the beginning of the program - just the information you gave us about getting together as a group and discussing problems we have - it would have helped us greatly.*

Student 16-3: *I wouldn't mind doing it if I was a first-year student.*

6.5.6.4 Better explanation of expectations

The interviews revealed that two students had trouble thinking of a critical incident to share with their peers. Both indicated that they were unsure of the expectations surrounding this task. Though neither student specifically requested a clearer explanation of PFR, their comments are instructive.

Student 16-1*: I really didn't know what you wanted. I really couldn't think of anything to talk about.*

Student 16-5: *I hadn't given my problem much thought, until, I don't know, right before we met. I probably should have chosen something else.*

6.5.6.5 Open topics

During the reflective discussion, students were instructed to share critical incidents related to academic or clinical issues. This approach served an important goal of the study: to help students develop the necessary critical thinking abilities synonymous with academic and professional success. However, one of the participants recommended that discussions should be open to a broader array of topics, and not solely limited to academic concerns.

Student 16-1: *I think we should be able to talk about more stuff than just school. Y'know, have everything be open. Like with issues about financial*

> *aid or volunteering. Just other things that we run into that we didn't talk*
> *about here. I think that would help.*

6.6 Analysis of Cycle I

Cycle I of PFR was the stepping-off point for examining a way of reflective practice new to students in the SCC PTA program. The previous sections documented a close inspection of the findings from this first round of reflective practice with an eye toward assessing its value to the students and the program. The following sections include recommendations as to how subsequent cycles of reflective practice should change based upon those findings. In keeping with the action research tradition of this study, these recommendations guided new action plans implemented into Cycle II.

6.6.1 Incorporate PFR into program curriculum

Cycle I findings support the value of PFR for those participants who engaged in the study. Notably, none of the participants re-experienced the same critical incident that had been described during the reflective discussion. However, participants did encounter new critical incidents and found that the insights gained through the discussion had fostered critical thinking abilities that enabled them to effectively cope with those incidents. For example, nearly all participants identified ways in which more proactive and effective communication could be applied to new situations for positive gain. Additionally, most participants began to rely more heavily on peer support to help negotiate the adversity and uncertainties of the academic program. And most recognized how assuming greater personal responsibility in the face of challenges led to better personal outcomes.

Each of these realizations is emblematic of deeper reflective abilities and critical thinking, something many authors have found lacking with more traditional reflective practice modes (Cross, 1993; Wald, et al., 2009; Watson & Kenney, 2014). It is not suggested that deeper reflection is unattainable through reflective journaling. Rather, PFR simply shows promise as an alternate reflective practice mode. In light of this

acknowledgement, even accounting for the limited sample size, continued PFR warranted further exploration. Adding meaning to any additional investigation required an expansion of its scope to one that more fully infiltrated the curriculum itself. To achieve this end, PFR became part of the PTA curriculum in Spring 2017.

The following sections detail additional modifications beyond that of simply expanding PFR's position within the program. Implementation of these modifications can be found in the following chapter, which addresses PFR Cycle II.

6.6.2 Distance faculty through peer led discussions and anonymization of data collection

As the principal investigator, I was present for the reflective discussion and conducted interviews with each of the five Cycle I participants. Specifically, I adhered to a protocol established by Westberg and Jason (2001). Notwithstanding seemingly favorable outcomes from this cycle, certain complications within the discussion itself, some overt and some covert, arose. The overt ones, such as the facilitation efforts required to elicit effective questioning and keep the discussion focused, have already been touched upon. It is the more covert ones that merit further analysis.

The discussion proved to be both a candid and convivial affair, characterized by rich and boisterous dialogue. Explanations for such candor are varied, but a few immediately stand out. First, the nature of the group dynamics was based upon mutual acquaintance. Participants had known one another for more than a year, being from the same cohort. Though they may not have all been close friends, their interactions revealed mutual amity. It has been suggested that peer discussions tend to be non-threatening and promote honest dialogue (Wessa & de Rycker, 2010; Wood & Kurzel, 2008), though others have noted that they may contribute to feelings of vulnerability and anxiety (Carter, 2013; Williams & Walker, 2003). It is arguable, therefore, that inherent group characteristics may have influenced the level of discourse. By the same token, it would be unwise to disregard any part that the facilitator might play. This concept deserves further exploration.

My role as the facilitator extends further back from when I first briefed the participants about reflective practice. It has grown out of my position as department chair and has developed as I built relationships with the students. Over the years I have made concerted efforts to create a judgment-free and hospitable academic environment. I regularly conduct open forums with students, soliciting feedback for program improvement. I have also made a point of assuming a consistent presence in the department, meeting with students individually to check on their academic progress and to discuss any concerns. It is widely held that out-of-classroom communications yield positive outcomes, including that of engendering trust (Dobransky & Frymier, 2004; Jaasma & Koper, 1999; Nadler & Nadler, 2001). I believe these strategies have worked to that end, and I am convinced that they contributed to a candid and productive group discussion.

But what if another faculty member had been the facilitator? And what if that faculty member had not developed the same trusting relationship that I had with these students? It is possible that the students would have been less forthcoming in their narratives and dialogue; particularly if any of the shared narratives involved an incident with that professor. Consequently, the positive outcomes realized from this discussion may, in large part, have been a product of the unique nature and dynamics of the particular group, facilitator included.

To effect continued trust and candor in future discussions, an alternate framework was needed; one that removes faculty from the picture. One popular approach is to train students to lead the discussions themselves. Stevenson (2005) recommends discussions that are facilitated or guided by peers, as opposed to relying on a faculty supervisor. She calls these "egalitarian consultation meetings" (Stevenson, 2005, p. 250), which, as the name implies, promote an equal voice amongst the participants. There are several advantages to this approach. Balasooriya, et al. (2013) assert that peer-led discussions enhance learning and team-building. Boud (2001) note that reflecting in the presence of a peer is less intimidating than it is in front of a faculty

member. Furthermore, Hudson and Hunter (2014) contend that it is easier to receive advice and mentoring from a peer than it is from a faculty member. And perhaps most relevant to the issues of openness and candor, Ladyshewsky, and Gardner (2008) suggest that the presence of faculty moderators may negatively influence student engagement in discussions. Empowering student leaders may, consequently, temper perceptions of oppression by authoritative figures. Out of these concerns, implementation of peer-led discussions was incorporated into Cycle II, the protocol of which is outlined in *Section 7.3.4.*

Additionally, post-discussion interviews were not anonymous, potentially contributing to student reticence or dissimulation, and potentially delegitimizing any conclusions. Whether this happened during Cycle I interviews remains unclear. The interviews were intended for data collection purposes only, seeking to glean information from participants about their perceptions of PFR. However, it must be acknowledged that the knowledge-producing nature of the interviews, as described by Holstein and Gubrium (2004), may have induced participants toward reflection, and may have unintentionally become a component of the intervention itself. In and of itself, inducing students toward more reflection was not necessarily a bad thing; however, it potentially influenced findings and interpretations.

The only suitable way around this complication was to have students anonymously submit written questionnaires. Items on the questionnaire, much akin to the interviewer questions, would guide students toward making realizations about their own experiences and learning from PFR. Though the shared narratives flourishing from interviews that Holstein and Gubrium (2004) so wholly embrace would be lost, resorting to written questionnaires became a necessary concession to safeguard the purity of responses. Thus, for Cycle II data collection, students anonymously submitted a written reflective questionnaire in place of interviews. The written questionnaire is presented in detail in *Section 7.5* and can be found in *Appendix L.*

6.6.3 Grading

The reflective discussion was a voluntary, ungraded activity. However, with the planned inclusion of PFR into the curriculum, assessment became a relevant topic. The literature supports the students' views on the unpopularity of grading (Delany & Watkin, 2008; Hobbs, 2007; Smith & Trede, 2013a), though assessment should not be discarded altogether. I agree with Boud's (1999) denunciation of process-based assessments, and I favor a departure from faculty-graded evaluation. Wherefore, I lean toward an outcomes-based assessment model that transfers the agency of evaluation to the participant. Instead of grading, the assessment of reflection should occur at the individual level, by the individual. Certainly, faculty should be interested in the students' own assessments, but their interests should lie in determining which processes of reflection work best for the students themselves. Through these understandings, faculty can then better guide students through appropriate avenues of reflective practice.

For PFR implemented into the PTA program beginning with Cycle II, students completed a reflective essay (*Appendix J*) that encouraged them to analyze their experiences and learning with PFR. The essay was graded Credit/No Credit based upon thoroughness of completion and was not used to inform this research.

6.6.4 Comprehensive reflective practice introduction

An emergent theme from Cycle I analysis was that students may have been inadequately prepared for PFR. A refrain from two participants intimated an uncertainty over expectations leading into the discussion. Participants also struggled to reflect during the discussion, possibly due to inexperience or lack of knowledge. Johns (2009, p. 12) stresses that guidance is required for reflective practitioners "to overcome resistance or to be empowered to act on understanding." Graham (1995) maintains that developing reflective ability demands maturity, time, and commitment to change. Perhaps it was unrealistic to expect students to profoundly reflect in what was their first foray into the practice. Nonetheless, pre-discussion preparations could have been more comprehensive. Westberg and Jason (2001) recommend that students should reflect on their own experiences prior to engaging in peer dialogue. The instructions given to

students in advance of the reflective discussion were not explicitly clear in this regard, leaving students unsure of their roles in the process. To obviate any such future pitfalls, Goodman (1984) impels mentors to train students on the focus, process, and attitudes necessary to reflect. Ultimately, a more comprehensive introduction to PFR was needed. This is explained in further detail in *Section 7.4 Cycle II Implementation*.

6.6.5 Positive critical incidents and open topics

The critical incident was adopted for this study, because, in Dewey's (1933, p. 214) words, "Reflective thought requires particular facts of observation and events of action for its organization." However, participants were asked to reflect only upon negative critical incidents, as they were deemed more suitable for initiating changes in practice. This strategy was based on Dewey's (1933), Lewin's (1946), and Kolb's (1984) learning cycles, in which one reflects on mistakes and proposes subsequent corrections. But it failed to account that critical incidents can be either positive or negative events (Flanagan, 1954). As they are such, students might have found value in assessing their responses to favorable occurrences. For instance, students could have constructed their analyses around values or behaviors that contributed to a positive outcome or an emotionally rewarding experience. Action planning would have further considered ways in which the individual could reproduce those effects in the face of different experiences. One student, though not explicitly recommending 'positive' incidents, did feel that discussions could be opened to a wider range of topics, including those that fall outside the ambit of academic or clinical practice. This seemed a reasonable request, as students are exposed to myriad difficulties both within and without their academic experiences that reflect all facets of life. It was this reasoning that led to the inclusion of both positive and a broader range of events for discussion, the particulars of which are described in *Section 7.3.3*.

6.6.6 Increase frequency of discussions

The single reflective discussion proved useful, as all participants indicated positive perceptions of PFR, and for some, positive outcomes. How closely this is linked to a single discussion remains unclear. The literature fails to identify a 'magic number' for

PFR, though this is to be expected, as reflection itself is akin to personal action research which will cyclically evolve for as long as necessary. The rationale for holding just one reflective discussion was to make PFR as feasible as possible, and to assess the value of just a single meeting. Hudson and Hunter (2014) utilized a similar protocol with service learning students. Though they reported positive outcomes, they offered no insight into the role that a single discussion played. Other authors (Platzer, Blake, & Ashford, 2000b; Walker, et al., 2003) have held multiple discussions, and this appears to be the norm. Multiple discussions do lend themselves more to double-loop learning (Argyris & Schon, 1978), as individuals are obligated to re-reflect on their action plans and their ways of thinking in subsequent meetings. Thus, a legitimate argument could be extended that students would realize greater benefit from a series of reflective discussions. Two students from Cycle I held similar views, wishing for follow-up discussions that would allow them to better assess their action plans and make changes, as needed. Some students also requested earlier implementation of reflective practice, as they felt that they could have benefited from group discussions earlier in the program. Drawing upon customary procedures from the literature, as well as from student recommendations, and considering that a single discussion proved quite manageable from both a time and organizational standpoint, multiple reflective discussions were incorporated for Cycle II, beginning in the program's second semester; details of which are laid out in Section 7.3.5.

6.6.7 Group composition

Though not explicitly identified as an area of concern by either the Cycle I participants or the principal investigator, the size of the discussion group played a key role in the success of PFR. Krueger and Casey (2009) recommend a group size of five to eight participants, and the Cycle I discussion fit within those bounds. However, the comments of one student who sought additional discussion time, coupled with the planned implementation of peer-led PFR on a much larger scale, encouraged a re-evaluation of the group composition. Providing additional discussion time was likely unfeasible due to already limited class time, so a reduction in group size was a reasonable compromise that would afford greater opportunity to speak. Also, I believed that smaller groups

would be easier to manage, especially since students would be tasked with facilitating their own discussions. Tomasello (2014) notes that groups are particularly adept at mutually beneficial collaboration. This is enhanced, suggests Newton (2017), when group size is kept small. Additionally, allowing students to form their own groups was geared toward engendering trust during the discussions, a necessary component of PFR. Consequently, Cycle II discussion group size was reduced to no more than four students.

6.7 Post-Cycle I Action Plans

Cycle I tested the waters, so to speak, of the implementation of PFR into a PTA program. Most important of the determinations arising from this test was that PFR was worthy of inclusion into the PTA curriculum, though it required significant modifications to existing protocols to best suit the needs of the program and the students. Careful analysis has been instructive, informing those modifications deemed most necessary. A listing of these action plans, implemented into Cycle II, can be found in **Box 6.2**. Details and analyses of their implementation is found in the following chapter.

Box 6.2 Post-Cycle I Action Plans

- **Incorporate PFR into the PTA curriculum**
- **Distance faculty from the peer reflective process by implementing peer-led, versus faculty-led, discussions**
- **Anonymize data via submission of post-discussion questionnaires in place of post-discussion interviews**
- **Offer a more rigorous and structured introduction to reflective practice and the discussion format**
- **Allow for positive, as well as negative, critical incidents to be shared during the discussions**
- **Increase the frequency of PFR to at least two times per semester, beginning in the 2nd semester**
- **Reduce group size to no more than four students to allow for adequate discussion time and easier management of peer-led discussions**

7 Cycle II

Peer-facilitated reflection (PFR) was implemented into the PTA curriculum in the Spring 2017 academic semester (Cycle II). This chapter outlines the sampling, recruitment, and implementation of Cycle II. Data collection techniques are described, and data is presented and analyzed.

7.1 Cycle II Sampling

Based upon recommendations from Cycle I participants, first-year PTA students in their second semester engaged in curriculum-based PFR. Twenty-eight students from the PTA Class of 2018 participated in two reflective discussions. Students also completed a post-reflection essay (*Appendix J*) which was not used for data collection purposes. Study volunteers submitted a questionnaire (*Appendix L*) designed to glean data about the PFR process and its effects. Cycle II discussions were held during the cohort's second semester; the rationale being that second-semester PTA students could draw upon more and varied experiences which would cultivate richer dialogue, and that they would also have had time (one full semester) to develop peer relationships which could enhance group trust. Carter (2013) acknowledges that trust development is key to effective dialogue, so this was taken into consideration when determining the timing of implementing PFR. Class of 2018 students were given the option of submitting a solitary reflective assignment, should they feel uncomfortable with the idea of peer reflection. None selected this option, and all students from the cohort engaged in PFR.

7.2 Cycle II Recruitment

An email request (*Appendix B*), was distributed by a clerk of the Division of Science and Allied Health with an attached Participant Information Sheet (*Appendix D*) and Participant Consent Form (*Appendix F*) to recruit volunteers to submit a post-reflection questionnaire for this study. Twenty-one students provided consent forms to the division

clerk and sixteen submitted anonymous written questionnaires via an online portal linked to one of their PTA courses. Additional details about sampling, recruitment, and ethical considerations can be found in *Sections 5.3* and *5.4.1*.

7.3 Cycle II Implementation

During the Spring 2017 academic semester, peer-facilitated reflection was implemented into the SCC PTA curriculum. The discussions were part of the course PTA 122: Introduction to Clinical Practice. Two 90-minute reflective discussions were held six weeks apart. Students met to discuss critical incidents they had encountered during the PTA program. The discussions followed a similar format to that of Cycle I (described in *Section 5.6*), albeit with key modifications generated from Cycle I analysis that are described below. Details of Cycle II implementation are provided in the following sections.

7.3.1 Introduction to reflective practice

Cycle I findings indicated that students may have been inadequately prepared to engage in productive reflective practice. Ameliorative steps were undertaken, and Cycle II students were provided a more thorough reflective practice introduction, drawing upon the recommendations of Westberg and Jason (2001), who encourage pre-discussion reflection on an incident, and Goodman (1984), who emphasizes three areas of training: reflective focus, reflective process, and attitudes for reflection. Included in the introduction was guidance that reflection should aim toward a conclusion, as it is not just a series of steps to be followed (Loughran, 1996). Students needed to envision how their critical incidents served as departure points for reflection that led to problem solving (Postholm, 2008). As such, they were encouraged to think about desired outcomes prior to the discussion; a strategy recommended by Westberg and Jason (2001).

Three weeks prior to the first reflective discussion, students were given an introductory, 45-minute lecture on reflective practice. Additionally, they were provided with a handout

(*Appendix J*) that offered definitions of reflective practice and significant events, and that explicated the academic and professional benefits of reflective practice. The document further included detailed instructions for the first reflective discussion, including an example of PFR in practice.

7.3.2 Group composition

In response to the need for more discussion time, and to better facilitate peer-led reflection, students were asked to form groups of three or four prior to the first discussion. For the first reflective discussion, students formed into five groups of four and two groups of three. Two students were absent for this discussion. At the second discussion, the two previously absent students each joined an existing group of three. One student was absent from the second discussion.

7.3.3 Positive and negative critical incidents

Before the first discussion, students were instructed to think about a significant event that emotionally resonated with them. Responding to feedback from Cycle I participants, students were afforded the opportunity to reflect on topics beyond the realm of the classroom or clinic, but that still influenced their development as future PTAs. Latitude was extended to also allow for the sharing of both positive and negative experiences; a departure from the 'negative-only' incidents characteristic of the previous cycle.

7.3.4 Peer-led discussions

To mitigate any power differentials between faculty and students, no faculty was present during the reflective discussions. Though the discussion protocol remained similar to that of Cycle I, whereby each student shared a narrative with his or her peers, and the group collectively devised action plans, students themselves led the discussions in the absence of faculty. To ensure confidential, respectful, and focused discussions, students were provided with guidelines (*Appendix J*).

7.3.5 Discussion format

Discussions were held in two classrooms of the Sacramento City College Division of Science and Allied Health. The first discussion was held in early March 2017, followed by a second discussion in late April 2017. Both discussions lasted approximately 90 minutes.

The first discussion protocol, outlined in *Section 5.6*, began with a narrator sharing an experience, followed by peer questioning, collective reflection, and action planning. Instructions for the second discussion differed slightly from the first (*Appendix K*) Students were asked to share if and how they implemented their action plans, and what, if any, were the outcomes. Group members were advised to collectively reflect on the outcomes, and to make suggestions for modifications to any action plans, as needed, thus continuing the cycle of reflecting, planning, and acting. Should it have arisen that an action plan was not implemented, students were given the opportunity to re-reflect on the original critical incident shared during the first discussion, or to relate another event to their classmates for analysis. Students were instructed to keep notes at each discussion for later reference.

7.4 Cycle II data collection

Following the reflective discussions, volunteers submitted a questionnaire (*Appendix L*) which was designed to glean data about student perceptions of PFR, what they learned from the process, how they foresaw reflective practice in their own professional futures, if at all, and how they might improve PFR in the SCC PTA program. Anonymous questionnaires were submitted via an online platform linked to course PTA 122.

7.5 Cycle II Findings

Data gleaned from questionnaires is presented in the following sections. As with Cycle I findings, themes are contextualized to questionnaire items. Similarly, these findings are used to inform subsequent cycles of PFR and to answer the research questions, which will be addressed in *Chapter 8*. Thematic data, as in the previous chapter, is presented

in tabular form, and is supported by student comments. Themes were identified by prevalence and importance, allowing for data-set inclusion based upon the frequency of similar responses or, more importantly, when responses were deemed conceptually relevant to the topic. Themes were excluded when they appeared irrelevant to the study mission, irrespective of their incidence.

7.5.1 Student impressions of PFR

General impressions of PFR were overwhelmingly positive. Students reported finding value in the discussions, and even in those instances when students revealed misgivings about the process, most were still able to reflect favorably on the experience. **Table 7.1** reveals these impressions and records the incidence of each. Select examples of student responses follow.

Table 7.1 Cycle II student impressions of PFR

Theme	Student	Percent of Students	Instances
Comfortable (comfortable, comfort, ease)	18-1; 18-3; 18-4; 18-5; 18-7; 18-8; 18-9; 18-10; 18-13; 18-15; 18-16	69%	23
Positive (positive, good, better)	18-1; 18-2; 18-3; 18-4; 18-5; 18-7; 18-10; 18-12; 18-15; 18-16	63%	44
Group cohesion/Support (peer, relate, support)	18-2; 18-3; 18-4; 18-7; 18-9; 18-10; 18-13; 18-15; 18-16	56%	21
Helpful/Useful (helpful, useful, beneficial, coping, cope)	18-2; 18-5; 18-6; 18-10; 18-12; 18-13; 18-15; 18-16	50%	39
Uncomfortable (uncomfortable, not comfortable, discomfort, unease)	18-2; 18-6; 18-12	19%	7
Venting/complaining (vent, complain, venting, gripe, bitching)	18-14; 18-15; 18-16	19%	10

7.5.1.1 Student comfort & support

A majority of students viewed the reflective discussions favorably. More than half expressed a positive experience, with a few specifically mentioning that the discussions were helpful. Greater than two-thirds of respondents reported that they felt comfortable during the discussion. This was attributed, in many instances, to a sense of cohesion and support amongst group members.

Student 18-4: *I enjoyed this reflective discussion group. It was interesting to hear what each of my classmates had to share. We were all there to help support each other. I chose to share an event that I perceived to be negative. It pushed me out of my comfort zone. Sometimes I can be a little reserved and not always share certain information about myself with others. However, I felt comfortable once I began sharing the event with my classmates because they seemed interested in what I had to say.*

Student 18-5: *My general impression of the group discussions as a way of engaging in reflective practice was that it ultimately was worthwhile. I was comfortable engaging in peer reflection because not only did I have a group of people I know well but because everyone opened up and we were all able to relate to each other.*

Student 18-10: *I believe this method was an extremely effective way to engage in reflective practice. It was helpful that the members in my group could relate even slightly to my situation since we are all students and now in the medical profession. Being able to put together our own groups made me feel more comfortable and willing to share details of situations that I probably would not [have] shared with other classmates or professors.*

7.5.1.2 Student discomfort

Not all students held a positive view of PFR. A minority articulated disquiet sharing personal anecdotes. Notably, some found their comfort level improved after listening to their peers.

> Student 18-2: *It is somewhat uncomfortable because you are being vulnerable to your peers who you do not really know well yet…I felt like some of my peers did not want to reveal much or they just have a topic that is easier to deal with. I was a little uncomfortable about sharing my issue about distractions because I know that it can be a very long discussion. My group listened to me, then after that I heard a sigh from someone. I'm not sure if that is a sign of boredom.*

> Student 18-6: *I certainly did not feel comfortable at first to start the conversation but after hearing 3 of my team mates unload, I was relieved to know that I wasn't alone.*

7.5.1.3 Venting/Complaining

One student mentioned that the discussion lacked focus and devolved into a venting and complaining session.

> Student 18-14: *Unfortunately for this instance in my group I felt that it went poorly. I would have been comfortable engaging in this line of discussion if I actually had a chance to speak at these reflective times. There was a form of chaos that came into my group discussions where it was for the lack of better terms a "gripe-fest."*

However, another student shared how complaining quickly evolved into an action-planning meeting.

Student 18-15: Initially, I was afraid it would be a "bitch-session," and in part, it was. However, since the assignment was to offer insight, it quickly turned into an action-planning meeting. For example, one participant was struggling with working full-time and studying to make passing grades. We strategized on how to be assertive in asking for less hours from the manager and borrowing money from her parents for living expenses.

7.5.2 Utility of PFR

Not all respondents found PFR to be helpful, but most did. Emergent themes as to why students found the discussion helpful are presented in **Table 7.2**.

Table 7.2 **Cycle II utility of PFR**

Theme	Student	Percent of Students	Instances
Alternate perspectives (suggestions, alternate, alternative, other, perspective, option, point of view, insight, interesting)	18-2; 18-3; 18-5; 18-6; 19-7; 18-9; 18-10; 18-12; 18-15; 18-16	63%	38
Listening & advising (listen, hear, advise, advice, listening, offer)	18-1; 18-2; 18-3; 18-5; 18-11; 18-12	38%	25
Similar issues (relate, related, similar, same)	18-2; 18-4; 18-12; 18-13; 18-14; 18-16	38%	11
Expressing concerns (express, share, talk, talking, engage)	18-2; 18-3; 18-5; 18-12	25%	14

Validation of concerns (confirmation, confirmed, validate, validated)	18-2; 18-4; 18-9	19%	5

7.5.2.1 Alternate perspectives

Similar to the findings from Cycle I, students most found that hearing alternate viewpoints was particularly beneficial in helping to develop problem-solving strategies. This was linked to being able to listen to others' challenges and how they coped, as well as with being able to confirm the validity of one's own concerns.

> Student 18-2: *I had the opportunity to listen to other people's opinions. Not all of them were useful, but a few were very interesting and are the ones that I am using so far for my situation.*

> Student 18-3: ...*you get to hear someone else's point of view and perception of the situation. This is also helpful in either justifying the way you feel or maybe gaining clarification and insight into the situation of different aspects you may have missed or misinterpreted.*

> Student 18-5: *Some of the things that were brought up were things I wouldn't have even thought of so it was also helpful to listen to what others had to share and brainstorm with them on what would be a good way to go about the situation.*

7.5.2.2 Listening and advising

Some students realized value in simply listening to their classmates' issues. They found it helpful to be in the role of advisor; a benefit attributed by van den Berg, et al. (2006) to PFR.

> Student 18-1: *All of us genuinely wanted to listen, understand, and advise what each one of us were going through for this PTA program.*

> Student 18-11: *As we engaged into discussions it was interesting that each of us had an experience that was completely unrelated to each other's experience. It was helpful to hear someone else's issue and be able to advise legitimate logic on how to deal with each situation.*

7.5.2.3 Shared issues/Not alone

Several students found that they shared similar experiences or concerns, which helped engender feelings of solidarity. This type of connectivity is what Arvidsson, et al. (2000) believe compels participants to more deeply engage with one another.

> Student 18-2: *This was helpful because since all of us are going through a lot of the same things we are all able to relate to each other and understand where the other person is coming from.*

> Student 18-12: …*we all have similar things that we go through while doing this program. Being able to talk about it with others who might be struggling just like I am was a breath of fresh air for me… It made me feel better to know that I was not the only one struggling to handle everything such as school, work, and life.*

7.5.2.4 Expressing concerns

Some students acknowledged it was helpful just to talk about or express their issues, alleviating anxieties.

> Student 18-3: *The discussions were very helpful. First, just being able to share your feelings and get things off your chest so to speak is therapeutic.*

> Student 18-5: *I feel that even just talking about things can be helpful and I felt that was something everyone in the group could agree on. Some of the situations didn't have a clear answer for but it was good to put it out there and get everyone thinking about it so that if these things arise again then they will be easier to handle.*

7.5.2.5 Validation of concerns

Along a similar vein of not feeling alone, sharing issues with classmates and hearing what others had to say helped to validate their own concerns.

> Student 18-2: *Someone in our group said, "Yes, I can relate to what you are saying." That made me feel better because they know how I was feeling.*

> Student 18-9: *The discussions were helpful because I did receive confirmation that my concerns were valid and common. I was in a group that provided different suggestions that were not only helpful but showed me how differently people respond based on their own experiences so I thought that was a beneficial reminder going into the field of health care.*

7.5.3 Disutility of PFR

Most students reported that PFR was eminently helpful in addressing their academic and clinical challenges. Just one student mentioned that it was not helpful at all. However, many students identified certain aspects of the discussions that were either unhelpful or problematic. **Table 7.3** outlines these themes.

Table 7.3 **Cycle II disutility of PFR**

Theme	Student	Percent of Students	Instances
Vulnerable/Unwilling to speak openly (vulnerable, distrust, not open, not comfortable, shy, anxiety, reluctant)	18-8; 18-14; 18-15; 18-16	25%	10
Unfocused (no focus, vent, wander, venting, complain, off-topic, bitch)	18-1; 18-4; 18-5; 18-14	25%	12
Unequal speaking time (unequal, dominated, uneven, not equal)	18-4; 18-8; 18-14	19%	6
Not unhelpful (helpful, not unhelpful, useful, positive)	18-1; 18-11; 18-12	19%	6

7.5.3.1 Vulnerability

A few students reported feeling vulnerable or witnessing their classmates' reticence, perhaps due to similar emotions. Walker, et al. (2013) stresses vulnerability as a potential shortcoming of PFR, in that it might impede candid dialogue.

Student 18-8: *I also found that a peer did not really wanted to reveal much, perhaps, not feel very comfortable speaking to all of us.*

Student 18-15: *We had one person join our group for the second session only. This was not helpful, since that person knew nothing about what had been discussed in round one and was unable to be vulnerable. This person was more of an observer than an active participant.*

Student 18-16: *For certain individuals, sharing problems was not easy, as it made them feel vulnerable. In some cases, it increased anxiety and nervousness. However, over the course of the semester, people became more and more open to discussion.*

7.5.3.2 Unfocused

Some students noted that the discussions could become unfocused and veer off-topic. Miller (2007) cites this as an existential issue resolved through adept facilitation.

Student 18-4: *In our discussion we did tend to go off topic a bit and on to tangents, which while it didn't necessarily help address the particular issue brought up but sometimes lead to other important topics of discussion.*

Student 18-5: *I think that it is nice to be with friends in a group so that ultimately the comfort to share is there but sometimes it makes it easy to get off topic. Luckily, our group only got off topic a few times and we were able to get back on track.*

7.5.3.3 Unequal speaking time

Similarly, a lack of focus led to unequal speaking time amongst participants.

Student 18-8: *Some ways the discussions were unhelpful was that we did not have equal time spent on each other's issues.*

Student 18-14: *The discussions were unhelpful because the structure of my particular group did not flow well. This is because we did not allow for more than a few people to even talk about problems, and then only had additional things to complain about with no solutions.*

7.5.3.4 Not unhelpful

Surprisingly, a plurality of students responded that the discussions were not unhelpful at all. They could not find anything to criticize about the process.

Student 18-11: *I did not think the discussions were unhelpful, it made a lot of sense to be able to have a moment to reflect on issues and concerns that the classmates and myself have.*

Student 18-12: *I feel that the group discussions in any way was not unhelpful at all. This was a positive assignment for us to be able to engage with each other and try to be there for each other and give each other advice. Without this group discussion, I would not have known that we all have similar feelings about our issues.*

7.5.4 Utility of action plans

Much of the value of reflective practice is underpinned by the utility of any plans put into action. Most students were able to successfully implement their action plans. **Table 7.4** provides a summary of the reasons behind the success of those plans.

Table 7.4 **Utility of action plans**

Theme	Student	Percent of Students	Instances
Altered approaches (different, better approach, change, learning, devised, devise, alternate, develop)	18-1; 18-3; 18-4; 18-7; 18-8; 18-9; 18-10; 18-11; 18-12	56%	12
Specific action plans (action, cope, coping, planning, plans, process, practice, action)	18-1; 18-3; 18-6; 18-7; 18-11; 18-12; 18-15; 18-16	50%	21
Useful suggestions (advice, suggestions, ideas, useful, helpful, helped, better, benefit)	8-3; 18-5; 18-7; 18-8; 18-11	31%	15

7.5.4.1 Altered approaches, specific action plans, and useful suggestions

More than half the students indicated that they were able to change their approaches to coping with critical incidents. To do so, they often relied on utilizing specific action plans.

Student 18-1: *The general consensus in our group that we discussed was how were we to communicate or have a better approach with our CI's [clinical instructor's] in our clinical and to some of our teacher(s) in our program. The action plan that we came up, that would be useful, were to come up with questions ahead of time by writing them down and setting aside a specific time to ask these questions to our CI's and to our teachers.*

Student 18-10: *Not only was the discussion helpful in helping me figure out techniques and strategies to deal with my situation, but it also gave me an insight in other situations that may occur to me in the future. And if I were ever in a similar situation as my group members, I now have helpful strategies to cope and get through them.*

Student 18-12: *The advice my group gave me was very motivating for me to change something in my life that was keeping me from getting better grades…My group helped me get the courage to talk to my manager at work to give me less hours to be able to concentrate on school more. Since the first group discussion, work has been different for me. I have had more time to study and my manager has been more understanding on the importance of my schooling.*

It must be noted that not all students were able to implement their specific action plans, nor did all find utility in the plans themselves.

Student 18-5: *I think that the action plans devised were very useful. They helped me at least feel empowered to speak up for the next similar situation. Unfortunately, I have not encountered another similar situation so I have not been able to use the advice of my peers.*

Student 18-2: *The actions devised with my group weren't necessarily useful or unusual. The topic I brought up was an isolated incident and although my classmates gave me great advice is that ever comes up again it has not come up yet so I have not really had a chance to implement the plan we devised during our first discussion*

Additionally, one group did not generate any action plans through the discussion. This comment came from a student who acknowledged that the discussion was more of a complaining session, with unequal speaking time for participants.

Student 18-14: *We did not devise any action plans in our group.*

7.5.5 Discoveries about learning:

Students were asked what they learned from PFR. Responses were assigned to a level of changes in practice based upon closeness-of-fit to criteria in the assessment model adapted from Panadero and Monoreo (2013). These are summarized in **Table 7.5**. The reader is instructed to refer to *Appendix R* for information about each reflective level.

Table 7.5 Cycle II discoveries about learning

Theme	Instances	Student	Percent of Students
Awareness of the critical incident and its relevance	16	All students	100%
Change in student's discourse	12	18-1; 18-2; 18-3; 18-4; 18-5; 18-6; 18-8; 18-10; 18-12; 18-13; 18-15; 18-16	75%
Change in usual coping strategies	11	18-1; 18-3; 18-4; 18-5; 18-6; 18-8; 18-10; 18-12; 18-13; 18-15; 18-16	69%
Awareness of changes in conceptions & coping strategies	9	18-1; 18-4; 18-5; 18-6; 18-8; 18-10; 18-13; 18-15; 18-16;	56%
Awareness of changes as a consequence of reflective practice	7	18-1; 18-4; 18-5; 18-10; 18-13	31%

Changes are permanent in conceptions and coping strategies	0	Unable to assess	

Unsurprisingly, there were progressively fewer instances of students achieving each hierarchical level of reflective outcomes. Such skill requires time and practice (Clouder, 2000b), and this was the first exposure to reflection for many. Additionally, achievement of Level VI changes in practice was unable to be assessed. The permanence of any changes to coping strategies are inscrutable, and would rely on assessment by the students themselves over time.

7.5.5.1 Awareness of the critical incident and its relevance

Responses indicated that all students were able to identify a critical incident, and that each demonstrated awareness of the incident's relevance to programmatic performance.

> Student 18-2: *One of my weaknesses is talking in front of the class, whether it be a presentation, or an event. I struggle a lot, I often get very nervous and I start to speak very fast, which means that the audience finds it very difficult to understand me. I have always had that fear.*

> Student 18-3: *What I did discover was that I was very worried about test scoring although, I score a C average on test…So, the feeling of "walking on thin ice" when it comes to passing a class based on test scores was stressful and distracting for me.*

7.5.5.2 Change in student's discourse

Most students revealed the ability to speak differently about their incident; specifically, to recognize how their coping strategies affected outcomes.

> Student 18-4: *After participating in the discussions, I found that my coping strategy is to deal with things while keeping the issue as small as possible. I prefer to get as few people involved as I can and try and just solve the problem on my own without blowing it out of proportion. While some people prefer to avoid bringing up the topic with the other person involved, I would rather talk to them first and see if something can be worked out.*

> Student 18-12: *I have realized that my own learning and coping strategies can change after talking with my group. It was nice to hear how others cope with things and how others have different strategies of learning.*

7.5.5.3 Changes in usual coping strategies

As revealed in section *7.6.4 Utility of Action Plans*, many students were able to implement new action plans to help cope with future critical incidents.

> Student 18-6: *After my group discussion and tips that I wrote down, I applied the method of picking a day of spending entire day with my family, next day on just myself before starting my studying session. I noticed after making that change, my kids were a lot happier and my husband as well. Usually I would abandon my family and study, study, study.*

> Student 18-12: *I took the approach to have the courage to talk to my manager instead of ignoring the situation that I was in. Taking a different approach has helped me gain more time in the day to focus on the program.*

7.5.5.4 Awareness *of changes in conceptions and coping strategies*

Many students became aware of how and why their action plans contributed to changes in outcomes.

> Student 18-4: *I think that the group discussion helped me grow as a person and be more open minded for situations like this in the future. The action plans that were discussed in my situation were very useful. My thinking process has changed in a more positive way…I've already noticed that I have handled future situations in a more healthy way. It was good to have the support of my classmates to help me carry out these actions.*

> Student 18-16: *I discovered that I didn't always have an effective way of communicating my thoughts. However, my primary coping strategy was releasing frustration via discussion.*

7.5.5.5 Awareness of changes as a consequence of reflective practice

Some, though fewer, students explicitly linked reflective practice to personal situational changes.

> Student 18-5: *I have become better about taking a moment to reflect on a situation to make sure I am not acting purely out of emotion. As far as learning goes I have gotten a lot better about being honest about not having an understanding for something so that it can be explained again. I used to feel much more insecure and so would just nod my head in understanding even if I didn't get it.*

> Student 18-13: *I learned that I have pretty good instincts when it comes to strategies to use for coping with conflicts that may arise in the workplace.*

I also learned that talking things out with trusted peers can be very helpful in deciding how to go about finding a resolution.

7.5.5.6 Changes are permanent in conceptions and coping strategies

Evaluation of whether learning changes are permanent is impossible, as this represents a life-long endeavor. However, recognition of the value of reflective practice and how it might influence new learning was assessed. Students were asked if they foresaw themselves engaging in reflective practice once they began their professional careers. The notion that reflective practice should become an instrumental component of the health professional's work is widely accepted (Johnston, 1995). Consequently, a favorable disposition toward reflective practice will likely contribute to its greater utilization. **Table 7.6** provides a summary of responses.

Table 7.6 **Cycle II future reflective practice**

Theme	Instances	Student	Percent
Continue with PFR	9	18-1; 18-2; 18-5; 18-6; 18-10; 18-11; 18-12; 18-13; 18-14	56%
Continue with PFR with reservations	4	18-4; 18-9; 18-15; 18-16	25%
Will not continue with PFR	3	18-3; 18-7; 18-8	19%

7.5.5.7 Continue with PFR

More than half the respondents indicated that they would continue with PFR (or some form of reflection) once they began their professional work.

Student 18-1: *I completely agree that peer discussion/reflection throughout this program and in our soon to be career starting profession is of absolute importance…it is important to still communicate and discuss and reflect on our experiences and to learn from other's experiences as well. I truly believe that is how we are going to learn how to become better PTA's and to be better as an individual.*

Student 18-10: *I believe it is a great way to keep myself honest about how I go about dealing with certain situations. It is a safe way for my peers to tell me things I may not want to hear, but it is important that I do. The best part of doing this with peers especially in a professional setting is that they are also exposed to similar situations and this makes it even more comfortable for me to share with them.*

7.5.5.8 Continue with reservations

A number of students saw the value of PFR, but expressed reservations sharing personal anecdotes and emotions with professional colleagues.

Student 18-4: *I think I would take part in peer discussion if I got comfortable enough in somewhere I was working. It would not be something I would do if I was new to a close group of work friends. But once I got comfortable and felt a part of the group I think it definitely has benefits.*

Student 18-16: *I do envision engaging in peer reflection in professional practice, but in informal settings with coworkers and with a bit more anonymity. I feel like it may or may not always successfully solve issues but it would help in the matters of de-escalating conflict and reducing anxiety.*

7.5.5.9 Will not continue with PFR

Three students revealed that they do not foresee themselves engaging in PFR in the workplace, mainly for reasons of privacy.

> Student 18-3: *No, I don't. Because I don't want to share personal things with my professional practice. That would be OK only if the subject is related to work.*

> Student 18-8*: Probably not. As part of my professional practice, this would mean with my coworkers. In this case I don't think that environment is appropriate for the level of honesty and trust that takes place within an environment used by the students in this exercise.*

7.5.6 Process recommendations

As part of their post-discussion reflective questionnaires, students were asked to offer at least two recommendations to enhance the process. There was no consensus as to how processes could be improved. **Table 7.7** displays the most common and applicable recommendations.

Table 7.7 Cycle II recommendations

Theme	Instances	Student	Percent of Students
Smaller groups	4	18-2; 18-4; 18-8; 18-14	25%
Less time	4	18-3; 18-4; 18-5; 18-7	25%
More time	4	18-1; 18-2; 18-3; 18-4	25%
More frequent discussions	3	18-1; 18-12; 18-13	19%
Implement in 1st semester	3	18-8; 18-9; 18-15	19%

Emphasize discussion focus	2	18-6; 18-10	13%
Improve pre-discussion instructions	2	18-3; 18-8	13%

7.5.6.1 Smaller groups

Four students advocated for smaller group size. The general sentiment was that with groups of four, inadequate time was available to explore topics more deeply.

> Student 18-2: *Another suggestion is I think that there should be 2 or 3 people in a group instead of 4 people. I felt like we didn't have enough time to answer all of the questions for the discussion.*

> Student 18-4: *While I enjoyed talking to more of my classmates, I think if the group sizes were kept closer to 3 students each the time would probably be used more effectively. This way, everyone would have a chance to talk in the shorter time and people wouldn't start to get tired of the problem solving and drift away to other topics.*

7.5.6.2 Discussion time and frequency

Perhaps not surprisingly, opinion varied regarding the amount of needed discussion time. Several students reported that they finished their discussions with plenty of time to spare, whereas others wished for more time to more thoroughly engage with their classmates. Notably, those students who requested more time also tended to request more frequent discussions.

> Student 18-5: *My second suggestion is shortening the discussion time. Even with a few times of getting off topic, while also having everyone thoroughly share, we had plenty of time to spare.*

Student 18-7: *It seemed like we didn't need as much time as we had in both discussions. So, my suggestion would be to either increase the group size by one person to utilize the time better, or leave the groups the same and decrease the time. We have so little time in the program as it is, so it would be nice to not waste any.*

Student 18-1: *Although, we did have an entire class period to discuss in our groups, we definitely had a lot to discuss and ran out of time in the end to better finalize our discussion.*

Student 18-2: *… more time to discuss the problem and get the feedback of each person or add one extra discussion section between the first one and the last one, just to see how the student is progressing with the problem.*

7.5.6.3 Implementation in first semester

Similar to recommendations from Cycle I, a few students felt that PFR should be implemented in the first semester.

Student 18-8: *Another suggestion is implementing this exercise during the first semester of the program. This could allow possible students struggling to admit they need help or just simply feel better by hearing they are not alone and others are struggling with similar issues.*

Student 18-15: *I think it would be great to begin this in the first semester, since a strong connection is made amongst the participants. It provides support to each student; which to me, is the only way to get through PTA school.*

7.5.6.4 Maintaining focus

In responses to previous questions, many students found that the discussion tended to stray off-topic. One student made a request for better structure to the discussion, including having a scribe write down each action plan.

> Student 18-6: *I would suggest to give one or two tips and move on to the next person that will give another piece of advice. The other suggestion that would be nice to try is have a scribe typing out each other's discussion and tips then sending it to the group to have and look over the notes.*

Another student emphasized the importance of maintaining discussion focus, but did not offer specific suggestions to this end.

> Student 18-10: *One suggestion would be to stress the importance of staying on topic during the discussion. It's normal for a group to get off topic, but if everyone in the group really focuses on the discussion this activity could be even more beneficial.*

7.5.6.5 Pre-discussion instructions

Other students requested more specific pre-discussion instructions, akin to comments from Cycle I participants.

> Student 18-3: *Be more specific with what kind of discussion we will have. I felt that I have some issues that they need to be address, but not necessarily I want to talk about them with my classmates.*

> Student 18-8: *This isn't a direct instruction but coming into the discussion with the problems available to be discussed would make it more productive as far as time goes. The problem is it takes time for people to get comfortable to the point where the real problems start to be exposed.*

7.6 Analysis of Post-Cycle I Action Plans

As with Cycle I, this section focuses on the efficacies and shortcomings of Cycle II PFR, utilizing the action research framework. This is the opportunity to reflect on the implementation of Cycle II action plans and to ask: 'what worked?' and 'what needs to and can be changed?' As a reminder to the reader, the key action plans implemented in Cycle II, based upon recommendations from Cycle I, are presented in **Box 7.1.** This is a replication of **Box 6.3** found earlier in the document.

Box 7.1 Post-Cycle I Action Plans

- **Incorporate PFR into the PTA curriculum**
- **Distance faculty from the peer reflective process by implementing peer-led, versus faculty-led, discussions**
- **Anonymize data via submission of post-discussion reflective questionnaires in place of post-discussion interviews**
- **Offer a more rigorous and structured introduction to reflective practice and the discussion format**
- **Allow for positive, as well as negative, critical incidents to be shared during the discussions**
- **Increase the frequency of PFR to at least two times per semester, beginning in the 2nd semester**
- **Reduce group size to no more than four students to allow for adequate discussion time and easier management of peer-led discussions**

7.6.1 Implementation of PFR into the 2nd semester

During Cycle I, participants were recruited only from the second year of the PTA program. This was based on the initial assumption that second-year PTA students would benefit more from PFR, as they would have had a broader collection of experiences upon which to draw for the reflective process itself. Despite this assumption, three Cycle I participants recommended an earlier implementation of PFR, as they found the process useful, and wished they had engaged in PFR earlier to help them cope with programmatic challenges. In response to these recommendations, Cycle II peer-reflective discussions were implemented in the second semester (first year) for the PTA Class of 2018.

Cycle II students who began PFR in the first academic year reported value from the discussions, contradicting the notion that earlier implementation would be less effective. Even a few students from both Cycle I and Cycle II felt that PFR could be initiated as early as the first semester, with one student suggesting that earlier implementation of PFR could help develop stronger connections amongst peers. It has been acknowledged that early and continuous implementation contribute to the success of curricular reflection (Pretorius & Ford, 2016; Saperstein, Lilje, & Seibert, 2015). Cole and Wessel (2008) suggest that students are apt to be sensitive to good and bad experiences early in their academic career. In light of these recommendations, and considering that other academic healthcare programs have implemented PFR early in their curriculum, reflective discussions have been implemented in the first semester for the following cohort – the PTA Class of 2019.[12]

7.6.2 Frequency of PFR

Two reflective discussions were held during Cycle II, each approximately six weeks apart. The intended value of holding multiple discussions was to more closely adhere to Kolb's (1984) Experiential Learning Cycle, which allowed students to implement action

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[12] Data for the PTA Class of 2019 is not reported in this thesis.

plans and to reflect upon the efficacy of those plans in the company of peers; generating new plans or modifications, as required.

Multiple PFR discussions appear to be standard practice, allowing for re-reflecting and planning. Tsang (2011a) varied between one and five discussions, acknowledging that the higher frequency may have been 'overkill.' Platzer, Blake, and Ashford (2000a) and Walker, et al. (2013) held bi-monthly and monthly discussions, respectively; though it is worth noting that these discussions were extramural. Such frequency may be unsustainable for the SCC PTA program. The introduction to reflective practice lecture was around 45 minutes, and each discussion lasted 90 minutes; time taken away from lecture or lab. These sessions were distributed across different classes and labs, so as not to encroach too significantly on any one course. Nonetheless, an impact of holding multiple discussions was the divestment of time from regularly scheduled classroom activities.

Despite the time sacrifices needed, three program faculty members were supportive, making class time available for discussions. Requests to faculty for additional time was met with some resistance. Even some students felt additional reflection time was unwarranted. Though four students appealed for more frequent discussions to dive deeper into their issues, an equal number considered the second reflective discussion a waste of time; time better spent practicing skills.

Two discussions per semester appears a happy medium, and plans for this format remain in place. It balances the needs of faculty and the opinions of some students with the desire for even more frequent discussions. Though compromise was required, the two-discussion format allows for re-reflection on action plans while not overly consuming precious classroom time.

7.6.3 Group composition
Group composition was carefully scrutinized following Cycle I, and, as a consequence, discussion groups were reduced to no more than four students for Cycle II. This change

in strategy was more about ensuring students had adequate speaking and reflecting time rather than any perceived or measurable value associated with smaller groups. Following the Cycle II discussions, group size again arose as a topic of comment. Opinions varied. Four students recommended smaller group sizes to allow for more discussion time: a similar refrain to that from Cycle I. Conversely, a few students felt that too much time was afforded for discussion, with some wishing for larger groups.

As mentioned in *Chapter 3*, professional opinion regarding group size is inconclusive, with different authors opting for various group compositions. It is worth trying to understand why groups of up to 10 or 12 from certain studies (Platzer, Blake, & Ashford, 2000a; Walker, et al., 2013) were able to effectively engage in PFR, whereas some groups of as few as 3 or 4 in this study felt a time crunch. A reasonable assertion is that some student groups were unable to maintain discussion focus and thus found themselves short on time. This assumption is supported by student comments. Three students (18-4; 18-8; 18-14) who advocated for smaller groups also shared that the discussions lost focus. Time constraints were not an issue in Cycle I, as a faculty facilitator was present to help maintain discussion structure; a characteristic of the discussion protocol unique to that cycle.

On the surface it seems that this issue is less about group size and more about structuring and managing an effective discussion; a concern that is addressed in *Section 7.6.5*. Notwithstanding this concession, smaller group sizes (as small as three students) may be warranted, if only to facilitate discussion management and to afford more speaking time. Though groups of three represent a smaller number found in the literature for all but one study (Walker, et al., 2013), it could be argued that smaller groups may more closely match typical 'watercooler' interactions experienced in the workplace (Newton, 2017) – those that resemble ad hoc meetings of just a few colleagues - and may just as adequately prepare students for real-world reflection once they begin their careers. It was certainly worthwhile putting this theory to test. For future discussions, starting with the PTA Class of 2019, group size was reduced to three

students. At the risk of disrupting cohesion and trust with PTA Class of 2018 students, group composition for future discussions with this cohort was left unaltered.

7.6.4 Reflective practice introduction

Cycle I participant feedback indicated misunderstandings regarding reflective discussion expectations. In response, Cycle II students were provided with a more rigorous and structured introduction to reflective practice, the discussion process, and action planning. Three weeks prior to the first discussion, students were given a lecture on reflective practice that was based upon a document outlining the peer-reflective process (*Appendix J*). This document also provided instructions for students to lead their own discussions. Prior to each discussion, students were afforded the opportunity to ask questions and seek clarification about their expectations. A few students did seek clarification, primarily about group selection.

All groups were able to engage in and complete both reflective discussions. However, questionnaire responses indicated that certain groups encountered various difficulties. One student (18-8) noted that some group members had not clearly thought out their critical incident. The student recommended that this should have been more clearly defined by the faculty. Another (18-6) felt that the expectations about how many incidents to share was not well elucidated.

These were quite simple modifications, and they are addressed in greater detail in the following section as part of a more comprehensive reflective modeling approach.

7.6.5 Peer-led discussions

Arguably the most significant modification from Cycle I PFR to Cycle II PFR was the removal of faculty presence from the discussions. This, coupled with the anonymization of data via post-discussion questionnaires, served to mitigate potential power-differentials between students and faculty; a recognized shortcoming that emerged from Cycle I.

Notwithstanding reported challenges, such as with groups that struggled to maintain discussion focus, the peer-led process proved generally effective. As presented in *Section 7.5 Cycle II Findings*, many students noted ease and comfort with the discussions, with more than half commenting on the positive nature of PFR. Furthermore, a general collegiality was shared by classmates, with several reporting that PFR brought them closer to their peers. This collegiality and candor has precedence in the literature, with Westberg and Jason (2001) remarking on the relationship-building that can occur when participants share their doubts and weaknesses.

It must be acknowledged that for some the discussions proved less effective, namely due to ineffective group management and poor discussion focus. During Cycle I, I helped to manage the discussion by actively participating as a facilitator. Cycle II discussions relied on the students' own abilities to proctor themselves. This framework realized mixed success. A prevalent criticism was that discussions tended to veer off-topic, ultimately leading to unequal speaking times and contributing to participant frustration. In those instances, it may reasonably be surmised that a lack of facilitation contributed to discussion inefficacy.

Facilitation is perhaps the most challenging component of PFR. Poorly managed discussions may lose focus, as was reported, and participants may become frustrated and even alienated (Westberg & Jason, 2001). Student 18-2, for instance, bemoaned a feeling of exclusion from the group; the student's commentary shared in *Section 7.5.1.2*. Student 18-10 suggested a greater emphasis on instructing students to "stay on topic". Sound advice, but simply reminding students to "stay on topic" may be impractical. A better approach might be to further train students themselves to manage their own discussions. This can be accomplished through reflective modeling.

Modeling is a pedagogical practice by which the teacher cultivates knowledge and practice through example. According to Loughran (1996), it extends beyond simple mimicking, but requires the student to experiment and make mistakes to enable growth.

Schon (1987) offers several approaches to modeling through which students can learn from their mentors, one of which, coined *Follow me*, appears most suitable for this academic setting.

Follow me involves faculty sharing their pedagogical knowledge with students through instructive discussion and example. For instance, faculty would train students ahead of a discussion on reflective pedagogy. A mock discussion could be held, during which students would observe how the faculty member leads the reflective conversation. Students would then aim to adopt similar strategies.

Bringing faculty back into the reflective discussions as facilitators was not an option. Instead, a mock reflective discussion, a la Schon's (1987) *Follow me* approach, is planned for subsequent reflective cycles. During the mock demonstration, common discussion pitfalls will be addressed. These will include how to maintain discussion focus, ensure equal speaking opportunities, and recognize vulnerable peers, etc. Furthermore, prior to future discussions, students will be tasked with assigning themselves distinct roles for each phase of the discussions: the narrator, the moderator, and the timekeeper. That way, if a speaker loses focus, the moderator could redirect him or her. If time was running short, the timekeeper could help keep the group on schedule. Westberg and Jason (2001) cite the utility of assigning roles and clear ground-rules in group activities, and this tactic offers a genuinely propitious strategy for sustaining discussion focus.

7.6.6 Written questionnaires

For Cycle II, post-discussion interviews were replaced with post-discussion written questionnaires. The questionnaires closely matched the interview schedule from Cycle I (*Appendix I*). However, with the questionnaires, students were able to respond anonymously and without fear of judgment.

The frankness of student responses did suggest that the questionnaire was an effective means for gleaning useful data; on a par, albeit different from the interviews. Though

honesty and candor did not appear to be jeopardized during Cycle I interviews, this was probably, as already suggested, due to the self-selective nature of the student participants themselves, and was likely not representative of what one could expect from obligatory reflective practice. In this regard, the questionnaires did a better job of preserving student privacy, and, though speculative, of promoting more candid replies.

Notwithstanding the protective value of questionnaires, notable drawbacks were identified. These were specific to the clarity and quality of student responses. Most of the submitted questionnaires were completed quite thoroughly, with students offering thoughtful, well-constructed responses. A few submissions, on the other hand, lacked the depth of thought needed for adequate interpretation. Moreover, the writing of some students was larded with extraneous information which tended to confuse, rather than enlighten the reader. With the interviews, I had the opportunity to ask follow-up questions that elicited further clarification. Once the written questionnaires were submitted, I was left to make interpretations with what was at hand, with no opportunity for follow-up. This made certain conclusions difficult to come by. Since returning to post-discussion interviews was out of the question, the only recourse was to reevaluate the questionnaire items themselves for clarity and validity. This is a process that is currently being undertaken with colleagues in the PTA program. It is hoped that newer iterations of questionnaires will elicit clearer responses with more useable information.

7.6.7 Broader range of critical incidents

Unlike in Cycle I, students in Cycle II were instructed that they could share critical incidents from a broader range of experiences, including both positive and negative events. This change arose from a Cycle I student recommendation, and demonstrated greater fealty to Flanagan's (1954) definition of the critical incident. Though Cycle II students were informed that they were not obligated to share details of their critical incident, quite a few did. It was enlightening to read how many of those incidents were related to family or work issues that, while not explicit components of their academic experiences, undoubtedly had an impact on them as PTA students. This 'opening up' of

the discussion to a wider range of topics appeared fruitful for those students. Thus, this change in protocol will remain in place for subsequent reflective cycles.

7.7 Post-Cycle II Action Plans

Cycle II PFR generated valuable process insights, many of which informed recommendations, or action plans, for subsequent cycles. Drawing upon feedback from students in both Cycles I and II, as well as from my own interpretations, the following action plans will be implemented for future cycles of PFR. A summary of these action plans is found in **Box 7.2**.

Box 7.2 Post-Cycle II Action Plans

- **Incorporate PFR into the PTA curriculum as early as the 1st semester**
- **Maintain the frequency of PFR at two times per semester**
- **Reduce discussion group size to three students**
- **Model PFR through mock discussions acted out by faculty**
- **Enhance focus by having students designate a narrator, moderator, and timekeeper for each round of discussion**
- **Re-evaluate and modify (as needed) the post-reflection questionnaires**
- **Continue to allow both positive and negative critical incidents and to allow for a broad range of topics to be included for discussion**

8 Discussion of Research Questions

The evidence generated from the two cycles of PFR has helped to answer the research questions. As a reminder to the reader, these are listed again in **Box 8.1**.

Box 8.1 **Research Questions**

In what ways do PTA students feel that peer-facilitated reflection has helped them to cope with critical incidents, if at all?

What facilitation efforts are required to effectively implement PFR?

How is the efficacy of PFR better assessed in an academic setting?

Following a discussion of the research questions, this chapter addresses the strengths and limitations of this study, examining closely both the trustworthiness and generalizability of findings.

8.1 In what ways do PTA students feel that peer-facilitated reflection has helped them to cope with critical incidents, if at all?

This question attempts to link the theory of reflection with changes in practice; determining whether or not students were able to use PFR to alter habits and ways of doing to better cope with critical incidents encountered in their academic program. Evidence of this nexus lies at the heart of the research. Reflective theory and practice have been debated considerably within the academic literature. Khan (2017) suggests

that reflection is both a stimulus and a response for theory and practice alike, yet others (Akbari, 2007; Atkinson, 2012; Beauchamp, 2014; Conway, 2001; Griffiths, 2000; Korthagen & Wubles, 1995; Russell, 2005; Thiessen, 2000) have offered that practice, vis-à-vis theory, is incompatible. These assertions mostly take footing in the notion that traditional modes of reflection, such as journaling and portfolio writing, often leave the student with little to show in the way of meaningful changes to practice. This, as a number of authors assert (Boud, 2001; Brockbank & McGill, 1998; Maloney, et al., 2013), may be a consequence of generally superficial and, though perhaps unintentionally, dishonest musings characteristic of these forms of reflection; thus hindering the emancipatory thought necessary for altered practice. Peer-facilitated reflection, on the other hand, has been heralded as a technique which may promote honesty and facilitate practice changes. The following sections analyze the research data with this theory in mind.

8.1.1 The theory-practice gap narrowed

Findings suggest that a majority of participants in both cycles found PFR effective for developing strategies to cope with critical incidents and for resolving real-world problems; evidence that corroborates the conclusions of several authors (Delany & Watkin, 2009; Franks, Watts, & Fabricius, 1994; Plazter, Blake, & Snelling, 2000; Tsang, 2011a; Walker, et. al, 2013). Nearly two-thirds of the students across both cycles specifically acknowledged that action plans developed during PFR discussions led to changes in practice.[13] Moreover, a similar number acknowledged that said changes in practice were beneficial. It deserves mention, however, that even practice changes not yielding beneficial outcomes do signify a narrowing of the theory-practice gap. If we consider Schon's (1983) reflective purpose, which is to alter praxis and assess new outcomes in context – reflecting on action - then even negative outcomes represent a meaningful step forward, as the reflective practitioner can contemplate how to correct action for future use. This brings to mind the example of Student 16-1, who, at the behest of her peers, engaged her clinical instructor over a disagreement regarding a

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[13] The reader is directed to refer to Sections 6.5.5 & 7.5.5

diagnostic procedure. The student admitted that, in that instance, she did not achieve resolution, but that she recognized the value of communicating more directly with her clinical instructor: a change from her previous ways of doing.

8.1.1.1 Alternate perspectives

The reasons for described changes in practice were manifold, representing a diversity of opinions. Foremost amongst these was an acknowledged exposure to alternate perspectives. This theme transcended both cycles, recognized by 62% of respondents, and it arguably represents the most valuable characteristic of PFR. Several authors have cited the dialectical nature of PFR as one of its greatest benefits (Graham, 1995; Habermas, 1974; Ladyshewsky & Gardner, 2008; Murray, et al., 2011; Walker, et al., 2013). Moreover, PFR is able to emancipate participants from the self-affirmation endemic to solitary modes of reflection (Lee, 2010). Critical social theory proffers that collaborative discourse leads to richer learning (Peterson & Miller, 2004). Several students specifically commented on how hearing different viewpoints from their classmates prompted them to change practice.

8.1.1.2 Solidarity and confidence

Discussions seemed to cultivate transformative behaviors, even if those behaviors were unrelated to specific action plans. For instance, many students found they were more courageous or confident in addressing issues head-on, seemingly in consequence to the solidarity engendered through mutual discourse. Solidarity arose from the similar shared experiences reported by many. Students expressed surprise and took heart in the realization that they were not alone in their struggles. If nothing else, hearing that they were not alone validated their concerns, a theme echoed by Delany and Watkins (2009).

The evidence bears this out. In Cycle I, all students agreed that they needed to rely more on their peers as a coping mechanism. This was directly an effect of recognizing shared experiences. As a result, three students from Cycle I revealed that they had

sought peer advice and support as a way to help them overcome encountered challenges. This trend continued in the subsequent cycle.

Furthermore, many students found they were more apt to trust the advice of their peers who were experiencing the same hardships. Boud (2001) and Hudson and Hunter (2014) suggest that students are more inclined to listen to and take feedback from their contemporaries. It is also worth noting that Farini (2012) highlights the nexus between trust and confidence, suggesting the latter may be enhanced through the former. In practice, enhanced confidence appeared to contribute to more effective implementation of action plans.

8.1.1.3 Capacity building

A surprising outcome of the discussions was that many participants recognized the value of action plans not specifically recommended to them. They learned to assess situations and to imagine alternate trouble-shooting approaches both through listening to their peers' narratives and through offering advice. Van den Berg, Admiraal, and Pilot (2006) contend that hearing one's own advice can enhance learning. In essence, many were able to build capacities toward problem solving.

This sort of capacity building, states Chiang, Leung, Chui, Leung, and Mak (2013), is emblematic of participatory group exchanges, and is useful for generating more broad-based learning. As mentioned, the learned propositional and professional craft knowledge, though valuable components of any student's education, does little to prepare one to negotiate the vicissitudes of professional practice. Rather, it is the collective knowledge generation of stakeholders that allows the practitioner to deconstruct thinking and build capacities for problem solving (Franks, Watts, & Fabricius, 1994). Moreover, capacity building counters the criticism that reflection is only good for retrospectively describing occurrences (Conway, 2001). To the contrary, some students acknowledged being able to plan for new issues that came their way, utilizing a 'reflection-before-action' framework described by Greenwood (1993), which encourages thinking about actions prior to their implementation.

8.1.1.4 Positive views

Over 70% of students across both cycles indicated that they viewed the reflective discussions favorably. Though favorable views do not necessarily elicit practice changes, students are more likely to learn from reflection if it is viewed positively (Constantinou & Kuys, 2013). Close to 80% of respondents found comfort in the discussions, and several found that their views were validated, a similar finding to Delany and Watkins (2009). Additionally, students felt empowered and valued the supportive nature of peer discussions, views discovered by both Platzer, Blake, and Ashford (2000a) and Tsang (2011). It deserves pointing out that two-thirds of all respondents indicated that they planned to continue with reflective practice; with a further 19% stating they might continue to reflect, albeit with reservations. This is likely due to the positive experience students gained from PFR.

8.1.2 The theory-practice gap maintained

The utility of PFR cannot be ignored, as the majority of students across both cycles were able to draw meaning from the exercise, and most were able to change aspects of their coping mechanisms. However, a non-negligible number found that PFR failed to meet expectations. Students from both cycles exposed certain PFR shortcomings, though Cycle II students were more inclined to find fault. This was likely due to two factors. First, Cycle I students were self-selected volunteers who were, admittedly, prepossessed toward reflective practice. Second, Cycle II discussions were peer-led, and consequently may have lacked focus, thus undermining its efficacy. This concern is explored in greater detail in *Section 8.2.2*, and it represents one of the more salient difficulties associated with PFR. Apart from poor discussion focus, students were able to identify several reasons why PFR did not work for them.

8.1.2.1 Vulnerability

In Cycle II discussions, a handful of students acknowledged that either they or their peers exhibited reticence. Most common amongst the explanations was that the discussions left them feeling vulnerable. Mayer, Davis, and Schoorman (1995) identify

vulnerability as a key component to trust, meaning the individual must be willing to share personal anecdotes and express emotions which could be used against him or her. The success of the discussions depended on creating an environment of trust and participant confidence. Williams and Walker (2003) make note of this, acknowledging that self-disclosure is intimately linked to feelings of trust within the group. Tardy and Dindia (1997) advance this concept by suggesting that openness is positively influenced by reciprocal liking amongst group members. Alternately, participants who hold unfavorable views of one another may be less likely to disclose personal information. It is why students in Cycle II were allowed to form their own discussion groups. Notwithstanding this accommodation, some students were reluctant to share personal narratives and feelings with others and may opt to eschew future reflective practice. This is borne out by comments that three Cycle II students do not plan to engage in PFR in the professional setting, and a further four harbor reservations about doing so; mainly due to issues of trust. Arguably for these students, the theory-practice gap did not, and may not, close.

8.1.2.2 Discussion focus

Perhaps the greatest factor undermining PFR was unfocused discussions. Four Cycle II students commented that discussions lost track, and three acknowledged that this contributed to unequal speaking times amongst participants. Understandably, if focus was not maintained, and if participants were not afforded the opportunity to narrate and reflect upon their narrative, then no meaningful action plans could be developed.

Though the Cycle I discussion was managed with faculty support, the Cycle II discussions were the first in which the students led the discussions themselves. Understandably, some groups were not as effective at managing their discussions as others. It is uncertain as to whether focus improved for the second discussion, as this was not revealed by student comments.

The student comments from both cycles were instructive. An obvious conclusion was that facilitation (whether external or internal) strongly influenced the extent to which

discussions kept focused. Details of facilitation efforts are addressed more thoroughly in *Section 8.2*. What the data implies, and what is further supported by the literature, is that without proper facilitation discussions may lose focus, threatening the egalitarian nature of PFR itself (Carter, 2013). Consequently, when these pieces are missing, PFR may be ineffective.

8.1.3 Was the gap narrowed?

Research findings support the view of several authors authors (Delany & Watkin, 2009; Franks, Watts, & Fabricius, 1994; Plazter, Blake, & Snelling, 2000; Tsang, 2011a; Walker, et. al, 2013) that the theory-practice gap can be narrowed through PFR. It accomplishes this by allowing students to cultivate the personal knowledge often missing from their arsenals of learning. This, in turn, generates better critical thinking abilities that can be applied to real-world problem solving, and that can be carried into graduates' professional careers. In doing so, PFR effectively links reflective theory to changes in practice.

The evidence supporting this claim comes from the student participants themselves. A majority found the reflective discussions helped generate new insights into the ways they think and behave; characteristics of personal knowledge or phronesis. Most students were able to take advantage of the shared perspectives not available through solitary reflective endeavors. Moreover, they were able to apply actionable ideas cooperatively developed with their peers toward resolving new problems confronted in their academic program.

8.2 What facilitation efforts are required to effectively implement PFR?

The research identified the breadth and depth of facilitative efforts needed to foster meaningful reflection in face-to-face encounters. Acknowledged was the need to shift from facilitation that favored faculty presence to an approach that relied on participant-led discussions. Additionally, understandings about pre-reflection instruction, discussion

management, and faculty cooperation were formed. Along the way, strategies were developed through action planning that may prove useful to faculty who endeavor to facilitate pedagogical reflection.

8.2.1 Faculty versus peer-led facilitation

Discussion facilitation distinctly varied between Cycle I and Cycle II PFR. The reader will recall that the Cycle I discussion and interviews were conducted in the presence of the principal investigator, a PTA program faculty. For Cycle II discussions, faculty was absent from the discussions and the post-discussion interviews had been replaced with post-discussion questionnaires. *Section 6.6.2*, the analysis of Cycle I faculty facilitation efforts, details the rationale for this change; most notably rooted in the need to mitigate power-differentials. This section does not re-hash the specific account of that change; rather, it explores the theoretical underpinnings of these two facilitative approaches with regards to effectiveness and student development.

At the outset, ineffective facilitation was diagnosed as a shortcoming of reflective practice in academia. Often, faculty do not sufficiently clarify instructions (Beauchamp, 2014) nor do they effectively model reflective practice (Russell, 2005). The Cycle I facilitation protocol, consequently, drew upon recommendations that were geared to redress these inadequacies. In particular, Walker, et al. (2013) recommend faculty presence to enhance feelings of security within discussion groups. Carter (2013) warns of the tenuous nature of peer reflection, whereby discussions may lose focus or pool ignorance. These admonitions encouraged faculty facilitator presence for the first discussion cycle, if only to ensure that the discussion was implemented to plan. As the post-Cycle I analysis revealed, flaws inherent within this approach demanded a paradigmatic shift toward peer-led discussion facilitation.

Notwithstanding identified complications of facilitator presence during reflective discussions, select theoretical arguments favor a peer-led approach. Ladyshewsky and Gardner (2008) acknowledge that faculty presence may stunt meaningful dialogue. Hudson and Hunter (2014) suggest that students are more willing to accept feedback

from their peers. And Arvidsson, Lofgren, and Fridlund (2000) go so far as to say that peer-led discussions augment feelings of trust and courage. Study findings support these views, as several students lauded the closeness engendered by reflecting with peers. It must be acknowledged, however, that a minority did express reluctance to be open and candid with their classmates. Though it is fair to speculate that those students would have been no more candid if reflecting in the presence of faculty.

Ignoring, for a moment, the existential reasons for favoring peer-led over faculty-led facilitation, the literary and study-based evidence supports the former approach as a utile learning strategy, enabling students to more independently construct their own experiences. This benefit cannot be ignored, as students need to be trained to reflect independently before entering the workforce (Wainwright, et al., 2010). In contrast, the facilitative course taken in Cycle I was based on obviating potential discord; a worthy tactic, yet one that failed to encourage students toward a path of autonomous professionalism.

Irrespective of the facilitative approach, both revealed recognizable difficulties. This should not be surprising, as reflective facilitation has been identified by others (Beauchamp, 2014; Brockbank & McGill, 1998; Hobbs, 2007) as a daunting challenge. The following two sections offer analyses of those issues encountered.

8.2.2 Pre-reflective instruction

It is posited that students' education of PFR influenced discussion process and outcomes, namely because different instructional practices ahead of each cycle yielded disparate student responses. *Chapters 6 and 7* describe these practices, with methods that evolved over each cycle in response to student feedback and investigator interpretations. They are more closely examined below.

Methods drew upon both Westberg and Jason's (2001) and Goodman's (1984) frameworks. The former have provided detailed suggestions for pre-reflective instruction, the main features of which are: teaching students to see the value of

reflection, discussing the reflective format, helping the learners create a safe environment for reflection, and establishing ground rules for discussions. The latter's recommendations align well with these strategies, with an emphasis on reflective focus, reflective process, and attitudes for reflection.

Following the Cycle I discussion and interviews, it became obvious that although students were able to acknowledge changes in practice, introductory efforts could have been more thorough and robust. Specifically, Cycle I students all struggled initially to engage in meaningful reflective discussion. As *Section 6.5.3* data revealed, participants appeared lost with regards to protocol, and required frequent faculty prompts to effectively engage their peers. Two students specifically commented that they felt unprepared for the discussion, unsure as to what type of incident to choose or what was specifically expected of them. Observations left me believing that perhaps none were adequately prepared, notably due to struggles adhering to the discussion protocol. The level of faculty input required to generate a productive discussion supports this conviction. Ultimately, this indicated a shortcoming in my own efforts to prepare students for PFR.

Modifications to pre-reflective instructions were made for Cycle II; details of which are provided in *Section 7.3.1* and which are briefly summarized here. The key differences in Cycle II instructions were that students were provided a more robust document that presented the theoretical basis for reflective practice, as well as a process description of PFR itself. An example of PFR in practice was included in the handout that showed how students could use reflective practice to change their coping mechanisms; something missing from Cycle I instructions. Additionally, students received a 45-minute lecture on reflective practice two weeks before the first discussion that carefully detailed the discussion requirements. A shorter 15-minute lecture that focused more on discussion processes prefaced the second discussion. This represented a significant increase in pre-reflective training from Cycle I which included a written handout and a 10 to 15-minute pre-discussion briefing.

Questionnaire responses indicated that most students benefited from the more thorough PFR introduction. Many were able to effectively engage in reflective discussions, developing and implementing action plans designed to help them cope with their critical incidents. Some, however, commented that critical incidents were not clearly developed prior to the discussion, and others mentioned that they were unclear about the type of discussion that would be conducted. Such comments were in the minority. In fact, only 2 students of 16 from Cycle II indicated unclarity ahead of or during the reflective discussions, as compared to 2 students of 5 from Cycle I. These figures are perhaps incomparable, as sample sizes for both cohorts were relatively small and may not reflect a larger trend. However, on face value, it appears that the more rigorous pre-reflective instructions did yield more positive outcomes.

It may seem obvious, but I would argue that the importance of comprehensive pre-reflective instruction cannot be overstated. Though Chuan-Yuan, et al. (2013) relied on only a 15-minute reflective practice introduction, Maree and Van Rensburg (2013) assert that meaningful reflection will not occur without comprehensive, guided, facilitated practice. It is arguable how much time should be spent training students to reflect. Time differences aside, the key, in my opinion, is to ensure that students see ahead of time what reflective practice can offer them. This means, as Postholm (2008) has suggested, that reflective practitioners should set outcomes as their starting point; namely, as Westberg and Jason (2001) contend, participants need to establish clear goals about what it is they wish to achieve through reflection. This was not clearly elucidated ahead of the Cycle I discussion, and some students struggled to select incidents that resonated with them or they initially had difficulty envisioning potential outcomes that they could strive toward. To remedy this shortcoming students needed to see examples of reflective practice. Providing a specific example of PFR in action to Cycle II students (something not done for Cycle I students), seemed to demystify the process. The fewer Cycle II responses indicating confusion regarding reflection on a critical incident support a recommendation toward this practice.

Notwithstanding the generally favorable outcomes achieved with more enhanced pre-reflection instruction, it was worth making further attempts to obviate any future ambiguity. Consequently, additional instructional measures were adopted prior to subsequent cycles of PFR. These have been described in *Section 7.7 Post-cycle II action plans*. The most noticeable change involves modeling reflective practice through mock discussions, heeding Loughran's (1996) advice that students need to witness reflection. Future analysis will reveal the efficacy of this intervention.

8.2.3 Discussion management

Perhaps the greatest difficult in implementing effective PFR was ensuring that students maintained discussion focus and were able to generate meaningful action items to help them learn to cope with critical incidents. A lack of discussion focus has already been identified as a threat to the utility of PFR. Facilitator observations (Cycle I) and student comments (Cycles II) revealed that discussions tended to divagate. Though unfocused discussions were not ideal for generating positive PFR outcomes, they did necessitate the trial of various ameliorative strategies which have proved instructive.

During Cycle I, my presence undoubtedly kept the discussion on track. Students acknowledged this themselves during the post-discussion interviews, suggesting that without my guidance the discussion would have devolved into a venting session. Carter (2013) and Williams and Walker (2003) emphasize the importance of facilitator presence; however, even Carter herself advises that the facilitator must engage in a balancing act between being a participant and leading the discussion. Ladyshewsky and Gardner (2008) struggled with this very concept, reporting that physical therapy students often found faculty facilitators to be overbearing during online reflective discussions. As mentioned, Cycle I students valued my presence, and I did not appear to fall into the same trap as did Ladyshewsky and Gardner. However, it has been recognized that faculty presence can adversely influence student honesty and candor, and can create power-differentials that may not be readily apparent. As such, faculty-led discussions may be inappropriate in an academic setting. It is worth noting that Carter (2013) and Williams and Walker (2003) implemented PFR in the workplace, where

although power-differentials exist, they are arguably less well-defined and potentially less pernicious than in an academic setting.

Recognizing the shortcomings of faculty-led discussions, all subsequent discussions were student led. This, as revealed in the Cycle II analysis, presented its own set of complications. As no faculty was present for the Cycle II discussions, any faculty facilitation had to occur through pre-reflection instruction. Following Cycle II, it was identified that further steps were required to promote discussion success. For instance, several students commented that discussions lost focus or that speaking time was inequitable. This concern must be addressed through teaching students how to better lead their own discussions, as no faculty will be present for any future discussions.

Platzer, Blake, and Ashford (2000b) and Westberg and Jason (2001) support participant generated intra-group guidelines. This puts students on a level footing with one another, further enhancing the egalitarian nature of group reflection promoted by Stevenson (2005). It also obligates students to take proprietorship of their own discussion success; a skill that will undoubtedly serve them well in their careers as they interact with other healthcare team members. To set up students for better discussion management, future cohorts will be instructed to decide on specific rules of conduct and agree upon time allotment for each narrator. For each round of narration, groups will designate a discussion moderator to preserve discussion focus, and a timekeeper to ensure equitable opportunities to speak. It is anticipated that this strategy should help discussions stay on point, and it will be assessed as part of the continuing PFR initiative.

8.2.4 Faculty cooperation

Westberg and Jason (2001) posit that student behavior will mirror the culture of their institution. It stands to reason, then, that if peer reflection garners faculty backing, it will elicit greater student participation. In this regard, faculty support was imperative to facilitating effective PFR, as the needed time and effort could not have been borne

alone. Analysis of faculty cooperation is both retrospective - what occurred during this research - and prospective – what might be required of faculty in the future.

Arguably, the factor which most tested the level of faculty cooperation was the reconciliation of PFR time demands within the existing curriculum. Peer-facilitated reflection, conducted to established expectations, demanded an appreciable allotment of class time; time not readily available due to the already compact program schedule. For instance, apart from the Cycle I discussion and interview, which were voluntary and occurred outside of scheduled classes, the two Cycle II reflective discussions required approximately 90 minutes each. Additionally, a 45-minute reflective practice lecture prefaced the Cycle II initial discussion, followed by a shorter 15-minute lecture before the second discussion.

Though the time demands may not appear extraordinary, the four hours given up to reflective practice was four hours subtracted from PTA instruction. To attenuate any adverse effects of these time demands, reflective discussions were divided across courses. For example, an introduction to reflective practice lecture was presented in course PTA 122. The first reflective discussion was held in course PTA 121 and the second discussion in course PTA 120. Thus, no single course had to absorb the four hours of lost time to reflective practice. But, this yielding of time did require faculty collaboration.

To earn this collaboration, I needed faculty buy-in to the process. Achieving faculty buy-in, in my opinion, was no different than selling reflective practice to students. The key was to convince faculty that reflective practice produces meaningful and tangible results. I was able to accomplish this through two strategies. First, I placed the issue of student problem-solving ability in context, just as I have done in this thesis. Faculty were given examples of how students struggled to cope with programmatic challenges that were not specifically linked to intellectual capacity or effort. Rather, their struggles were often rooted in their inability to resolve why their usual coping strategies were ineffective. My colleagues, well aware of the nature of these difficulties, could see that

simple dint of effort was inadequate, and that alternate strategies were needed. Next, I shared with them the Cycle I findings, which, despite the limited sample size, intimated that PFR represented a practical approach to addressing these very concerns. As a result, four of my colleagues agreed to yield class time for discussions.

The other aspect of faculty cooperation is concerned with how faculty are involved with PFR as it goes forward; particularly with regards to pre-reflection instruction and assessment. For this research, I provided the pre-discussion student instruction and read each post-discussion questionnaire. If this initiative is to remain viable, program faculty must assist with reflective instruction and assessment.

It could be argued that the implementation of PFR into an academic program, at least from an instructional and assessment standpoint, is not altogether burdensome for faculty. Chuan-Yuan, et al. (2013) and Ladyshewsky and Gardner (2008) both offered minimal pre-reflective practice instruction with seemingly positive outcomes. Pretorius and Ford (2016) suggest that students can make meaningful and profound discoveries with very little instruction. Though speculative, this may have to do with the social tendencies of students (Brockbank, McGill, & Beech, 2002), who might be naturally inclined to share and reflect upon narratives. This study's outcomes support those views, as even though Cycle II instruction was notably more involved than Cycle I instruction, students generally realized the benefits of PFR with relatively little training. Furthermore, assessment demands are no different than what has previously been required in the program, as students in the past had submitted reflective assignments following their clinical practicums.

These recognitions are important, considering the sometimes feeble embrace of reflective practice in academia (Boud, Keogh, & Walker,1985; Noffke & Brenan, 2005). However, gaining further faculty support may become problematic. For reflective discussions held during the Fall 2017 semester (not included in this research), some faculty did express misgivings about the cost-benefit of PFR, particularly as it encroached upon their class schedules. Specifically, two members of the department

exhibited reluctance to offer class time for PFR beyond the first couple of semesters. Neither have offered to help with the instructional aspects of PFR. As of this writing, this issue is unresolved.

8.2.5 Summary of facilitative efforts

In summary, faculty facilitated discussions, though useful for maintaining discussion focus, may be inappropriate in an academic setting for reasons of student honesty and power-differentials. Rather, well-constructed discussion guidelines that direct students toward outcomes, that provide specific PFR examples, that allow students to see PFR in action through demonstration, and that encourage the adoption of functionary roles for each group's members, appear better suited to promoting meaningful peer-led reflective discussions. Additionally, adequate time for teaching and reflection requires significant sacrifice from faculty, who must relinquish class periods for these purposes, unless, as will be considered in *Chapter 9*, students are trained to engage in extramural reflection. Faculty must also be convinced of the value of PFR in order that they buy in to the process and continue to cooperate.

8.3   How is the efficacy of PFR better assessed in an academic setting?

With reflection now being an imperative of academic healthcare programs (Johnston, 1995), reflection is subject to faculty assessment. Commonly, assessment approaches examine processes, with the markers being adherence to reflective steps rather than identification of reflective depth or consequences (Smith & Trede, 2013a). Such criterion-based assessments, however, may be too reductive or may entirely miss the point of reflection (Boud, 1999). Alternately, some attempt to measure reflective ability instead of process. Certain models come to mind, such as Kember, McKay, Sinclair, and Wong's (2008) four-category scheme for assessing written reflection, which consider changes in thinking. The difficulty is that little is understood of these types of abilities (Sumsion & Fleet, 1996), with James and Clarke (1994) contending that there are no measures by which to assess if reflection is actually occurring. Eaton (2016, p.

162) adds that "reflective thinking, by its very nature, is a subjective and dynamic activity and cannot be reduced to a mechanical set of skills to acquire." In response to these shortcomings, an assessment approach that examined changes in practice, rather than adherence to criteria or the demonstration of inscrutable abilities, was utilized. This model of assessment was evaluated for both its efficacy and its utility.

8.3.1 The assessment model

Part of this study's purpose was to ascertain whether or not PFR proved an effective means by which to help PTA students cope with critical incidents. To determine its utility, an assessment model was designed to appraise reported changes in student practice and knowledge generation consequent to PFR. Additionally, the instrument itself was scrutinized for its efficacy in helping to make these determinations. It should be pointed out that the instrument was not utilized for purposes of grading or assessing adherence to reflective processes, nor did it examine reflective abilities; they being arguably too subjective to actually assess (Eaton, 2016). Though the assessment instrument can be found in *Appendix R*, it is included in **Table 8.1** as a convenience to the reader.

Table 8.8.1 **Levels of change in practice after reflecting on a critical incident**

Adapted from Panadero and Monereo (2013)

Level	Variable	Type of Change
I	Critical incident occurrence	Awareness about the critical incident and its relevance
II	Reflection about the critical incident's impact	Change in student's discourse
III	New practices – coping strategies	Change in the usual coping strategies
IV	Learning from the critical incident	Awareness of the changes in conceptions and coping strategies
V	Learning from the reflective process	Awareness of the changes as a consequence of reflective practice
VI	Learning continuity over time	Changes are permanent in the conceptions and coping strategies

8.3.2 Assessment efficacy

It warrants asking if the instrument actually performed as intended. The efficacy of assessment depended upon two critical components: data garnered following each reflective discussion cycle, and the precision of the assessment rubric. Specifically, assessment relied on being able to interpret students' verbal responses during post-discussion interviews (Cycle I) and written responses from post-discussion

questionnaires (Cycle II) in accordance with the hierarchical levels framed in the assessment rubric.

Findings suggests this could be done. Student responses from each interview and questionnaire were compared against descriptors from each level of practice change for thematic congruency, and they were assigned a level of practice change (*Tables 6.3 & 7.5*). This was accomplished for each student with relative facility. The reasons for this are linked to the types of questions students were asked and the depth of description for each hierarchical level of the rubric. The interview schedule and questionnaire specifically sought responses that aligned with each level. Per Kember, et al. (2008), each level of the assessment rubric was clearly distinct from other levels and was thoroughly described, allowing for more confident classification of student responses. Questions, though mostly open-ended, were pointed toward eliciting certain types of responses. For instance, it was valuable to know student perceptions of PFR, what worked and what did not, and why. It was required that students could acknowledge if they were able to change practice, and what effect PFR had on any realized changes. It may seem as though a procrustean solution was sought by constructing questions so convoled with the rubric, but it is important to remember that the interviews and questionnaires were not part of the student reflective experience. Rather, they were purposefully designed to extract specific information about how PFR did or did not help to elicit meaningful changes in student practice. As such, they facilitated the assessment process.

Notwithstanding the apparent facility of assessing PFR, difficulties emerged. Questionnaire responses, in particular, revealed a broad spectrum of clarity and depth. Despite questions geared toward eliciting more purposeful responses, some answers were vaguely written or did not address the questions being asked. In some instances, student prolixity led to multiple questions being answered in a single response. Thus, data needed to be teased out of lengthy replies; a burdensome task. This problem did not occur to the same extent with the Cycle I interviews. If, during an interview, a participant provided an incomplete or ambiguous answer, clarifying follow-up questions

could be asked. This convenience was unavailable when reading Cycle II questionnaires.

Additionally, challenges arose when assigning responses to higher hierarchical levels. This was due to each progressive level's greater complexity. For instance, identification of the first practice change level was confirmed by evidence that the student was aware of the incident and its relevance to his or her academic experience. This was relatively straightforward to assess, and all students were able to acknowledge a critical incident and its impact. Similarly, most students were able to speak differently about the critical incident (Level II), as this should have emerged from discourse with their peers. Likewise, to identify a Level III practice change, students needed to simply describe a change in their usual coping strategies. These changes typically emerged from action planning with their peers. Identifying a Level IV change, on the other hand, required evidence that the student was not only aware of how the coping strategy had changed, but that the student had acknowledged that any such changes were due to different ways of thinking. And to identify a Level V change, the student had to be clear about how PFR had changed his or her ways of thinking and doing. Achievement of Level IV or V demanded that the student could clearly acknowledge and express those changes verbally (Cycle I) or in writing (Cycle II). Findings suggest that fewer students could achieve these levels, though differences existed across cycles.

The reasons behind this are not entirely clear. The small, non-representative sample population makes such determinations difficult. Different implementation and data collection techniques for each cycle also confound analyses. However, because outcome disparities were evident between cycles, it raises questions that are worth investigating and that may require further study.

Most notably different between the two cohorts was that Cycle I participants were identified to have achieved Level IV practice changes, whereas just 69% of Cycle II respondents achieved this level. Level V practice changes were apparent for 40% of

Cycle I and 33% of Cycle II participants, respectively. There were differences across other levels, as well, with students from Cycle I scoring consistently higher.

It is plausible that these disparities are due to data collection techniques, different approaches to PFR, and even group composition. Alternately, actual differences across these cohorts may simply exist. During Cycle I interviews, as mentioned, I could seek clarity through follow-up questions; a tactic of which I repeatedly took advantage. Conversely, some Cycle II students did not express themselves clearly in written questionnaires, yet no opportunity existed to seek clarification. Assessment in such instances proved challenging, often leading to the assignment of lower practice change levels, at least compared to Cycle I students. Discussion formats varied greatly, with Cycle I students reflecting in the presence of the principal investigator, and Cycle II students leading their own discussions. *Section 8.2* has already highlighted the differences between these two formats. Motivation may also have played a factor. The self-selected nature of Cycle I participants varied significantly from students in Cycle II who were obligated to participate in curricular PFR. As such, Cycle I students may have been more prepossessed toward reflective practice, an opinion confirmed by participant comments. Or quite plausibly, the identified levels actually did reflect the changes in practice within each cohort.

Any conclusions are purely speculative at this point due to the limited data sets. However, such hypotheses are important as they drive future study. Accounting for variables just described must be part of repeated analyses on multiple cohorts to add further clarity and validity to the assessment process.

8.3.3 Strengths & limitations

Despite the assessment model's relative ease of use, it is not without its flaws. The following is a summary of key strengths and limitations, with a commentary on plans for further development.

8.3.3.1 Strengths

Conspicuous in the assessment of PFR is that this model has examined reflective practice from a vantagepoint less commonly used. Notably, it involved a shift away from process-based assessment or assessment of reflective ability, and considered, instead, changes in practice. The relationship between reflection and practice is a critical element of this research, and the assessment model made possible the interpretation of any correlation between the two. The literature also supports this approach, with Boud (2001) and McMullan (2006) arguing that assessment should be contextualized to outcomes. It is the manifestation of practice changes, suggest Stewart and Richardson (2000), that indicate reflectively induced critical thinking.

This assessment approach transferred the agency of evaluation from faculty to student. Assessment drew upon a participatory model of evaluation, described by Springett (2001), in which the individual decided, based upon outcomes and his or her own recognitions of how PFR affected change, what worked and what did not. Though students were not privy to the assessment rubric itself, they were aware that they were evaluating PFR through interviews and questionnaires within the context of their own experiences and outcomes. Smith & Trede (2013a) believe it is the student who is most apt to make a meaningful interpretation of the results of reflection. Schon (1983) speaks of a technical rationality, whereby the practitioner is able to make sense of how the principles of reflection guide its undertaking, ultimately leading to changes in professional practice. As Khan (2017, p. 64) describes it, the reflective practitioner learns "during action through practical theorizing." It is through these processes, Khan continues, that phronetic, rather than propositional, knowledge is expanded; knowledge that can help guide the individual through his or her professional career. Importantly, such participatory evaluation prepares the reflective practitioner for future self-assessment, a useful skill to be carried into professional practice. In the context of this study it proved successful, as many participants were able to recognize, to varying degrees, the consequences of PFR through self-assessment.

The assessment model is relatively easy to use and can interpret different sources of data. As mentioned, each hierarchical level in the rubric is characterized by a thorough description which is associated with specific practice changes, making interpretation relatively straightforward. Additionally, data was extracted from interviews (Cycle I) and questionnaires (Cycle II), and plugged into the instrument without difficulty, suggesting that the instrument exhibits versatility. These are both important attributes for faculty who, though required to be intimately familiar with assessment descriptors (Kember, et al., 2008), will likely appreciate an uncomplicated instrument.

8.3.3.2 Limitations

Despite initial promise, the assessment model – including both the questionnaire and the assessment rubric - is still quite limited in its applicability. Most salient of any deficits are the lack of established validity and reliability. As there are so few reflective assessment instruments, and none resembling this particular model, criterion-related validity, which compares the assessment model to a gold-standard, may be challenging to establish. Also, with only two cohorts assessed, with both cycles relying on significantly different implementation methods, and only one investigator assessing data, there is simply inadequate data to draw strong conclusions about its utility.

Nonetheless, validity and reliability can be established over time. There exists a modicum of face validity, as the instrument is derived from Panadero and Monoreo's (2013) approach. Also, content validity, which "refers to the adequacy with which the universe is sampled by a test" (Portney & Watkins, 1993, p. 72), can be established. Though this is typically a subjective process, input from a variety of experts, including those with both questionnaire development and reflective assessment experience, can review and determine if components of the assessment model accurately measure levels of change in reflective outcomes. Construct validity, which relates how well an instrument can measure an abstract concept, such as reflection, can be determined, as well. This may be best done through hypothesis testing that would rely on the use of literature to predict how well the assessment model supports the theory that changes in behaviors subsequent to reflective practice can be evaluated. Additionally, repeated

trials using other forms of reflective practice and with other investigators should reveal the consistency of the instrument. Similar approaches were incorporated by Kember, et al. (2008) to validate their assessment of reflective thinking.

8.3.4 Summary of assessment

This study set about assessing reflective practice; something with which many authors have noted considerable difficulty (Eaton, 2016; James & Clarke, 1994; Sumsion & Fleet, 1996). Shortcomings of criterion-based evaluations and assessment that examine reflective ability have been identified. By choosing to evaluate, instead, reflective outcomes, this research has attempted to find a 'better' way; one that scrutinizes changes in practice and appraises the suitability of a reflective approach. Several authors (Boud, 1999; Smith & Trede, 2013a; Stewart & Richardson, 2000) assert that outcomes-based assessment is more appropriate, as it aligns with Schon's (1983) reflective purpose of eliciting practice change. Unfortunately, few models exist that allow educators to assess reflective outcomes. It is why such a model was adapted for this study.

Still in its incipiency, the assessment model has demonstrated promise for assigning rubric-based scores to descriptive themes extracted from student narratives. Importantly, any such scores or ratings were not applied to individual student evaluation, as this approach is too oft criticized (Cooper, 2014; Eaton, 2016; Sumsion & Fleet, 1996). Rather, assessment was used to examine more broad-based effects of PFR on multiple cohorts of students, to determine if PFR was a suitable reflective practice approach in a PTA academic setting. Initial findings suggest that PFR is suitable, justifying its inclusion into the program curriculum. However, this justification is based upon an instrument still in its development, and that is not yet validated.

Does this outcomes-based assessment approach represent a better way? It is too early to tell. Determinations of 'better' or 'worse' are often rooted in subjectivity and preference. However, models such as this can complement more traditionally-based

assessments – those that examine processes and abilities – for a comprehensive assessment approach.

8.4 Trustworthiness of claims to knowledge

The analyses in the previous sections represent the best interpretations of the available data. It cannot be ignored that both the data and its interpretations are foundationally subjective, opening to scrutiny any claims of validity. The trustworthiness of any qualitative research often suffers due to its inherently subjective nature (Buchbinder, 2010). Recognizing this, Lincoln and Guba (1985), have created an assessment model that evaluates a study's trustworthiness by examining four criteria: credibility, transferability, dependability, and confirmability. The authors outline an array of techniques for ensuring research trustworthiness. These were incorporated into the design of this study.

8.4.1 Credibility

To ensure credibility, otherwise described as internal validity, I employed various techniques. During Cycle I, which relied on interviews for data collection, I engaged in a process described as 'member checking.' This involved soliciting feedback from study participants about my written interpretations following the discussion and interviews. As researchers are inherently biased (Griffiths, 1998, cited in Halliday, 2002), confirming analyses and conclusions with participants ensures that one 'gets it right.' Participants were provided a summary of my conclusions and were afforded the opportunity to comment on or correct any declarative statements. All found that that my interpretations accurately reflected their views.

Member checking was not an available option for Cycle II, as collected data was anonymous. Rather, Cycle II data underwent thematic analysis through open and axial coding described in *Chapter 4* and via concept identification through Leximancer text analysis software. Themes identified through open and axial coding were compared for congruency with software generated themes, enhancing credibility.

8.4.2 Transferability

Transferability, or external validity, was achieved by offering what Lincoln and Guba (1985, p. 316) call "thick descriptions" of data. Not only are numerous examples of discussion, interview, and questionnaire quotes provided in the findings, but they are accompanied by rich, descriptive analysis that exposes my own interpretations. It is worth mentioning, however, that action research is often conducted on a relatively small scale, within the confines of an institution or department. Such was the case with this research. Consequently, findings may not be suited for generalization, but rather serve to guide practices within one's own environment (Koshy, 2005). Though it is hoped that others may find value in the research undertaken, conclusions may be best appropriated for use within my own department or division.

8.4.3 Dependability

Dependability, also referred to as reliability, was established by examining the accuracy and consistency of data collection (Lincoln & Guba, 1985). In Cycle I, accuracy was assured by recording and transcribing both the group discussion and interviews. In Cycle II, students submitted written questionnaires, which ensured personal analyses were indelibly in their own words. Group discussion consistency was a non-issue in Cycle I, as only one discussion was held. In Cycle II, group composition remained constant across both discussions. Though Cycle I interviews were semi-structured, allowing for less-restrictive dialogue, questions were drawn from an interview schedule (*Appendix I*), which ensured that all participants were asked, at minimum, a consistent set of questions. Similarly, the Cycle II post-discussion questionnaires closely aligned with interview questions.

8.4.4 Confirmability

Finally, interpretations were confirmed, or deemed objective, by comparing findings with discussion, interview, and questionnaire data, as well as with general themes extracted from the literature. Member checking ensured that interpretations matched the opinions

of Cycle I participants. This was not possible with Cycle II participants, as their questionnaires were submitted anonymously. However, the literature that guided the direction of this research served as a touchstone against which to compare conclusions and knowledge claims.

8.5 Study limitations

Though findings support the implementation of PFR in an academic PTA program, identified limitations threaten the study's internal and external validity. Internal validity deals with the truth about inferences drawn from the findings, specifically asking what factors may have influenced the results. External validity relates to the confidence that findings are transferable to other situations. Inadequate assurances of validity affect the credibility, transferability, dependability, confirmability, and authenticity of knowledge claims (Lincoln, 1995; Lincoln & Guba, 1985), and, as such, must be acknowledged. Study limitations are highlighted below.

8.5.1 Sampling & recruitment

The sample size was small, with only two cohorts of students participating in the study, and data being extracted from just 21 students. Additionally, convenience sampling may have influenced results. Both cycles were comprised entirely of voluntary participants; with Cycle I participants volunteering for both the discussion and interviews, and Cycle II students volunteering to submit post-discussion questionnaires. Roche and Coote (2008) emphasize that voluntary samples are not random, and it is plausible that random selection would alter research findings. Particular to this study, Cycle I volunteers were likely prepossessed toward reflective practice, an assumption founded on the comments of three participants who revealed that they were very interested in reflection before the study began. The same may be said of Cycle II participants, as just over half the cohort submitted questionnaires, and most respondents indicated positive views of PFR. It is worth acknowledging that the implementation of curricular PFR (Cycle II) was based upon Cycle I findings that arose from a potentially biased cohort.

8.5.2 Assessment model

The assessment model adapted for this study, though seeming to prove effective, is not yet a validated instrument. Validity issues, as well as reliability concerns, identified in *Section 8.3.3*, still need to be reconciled. Thus, any claims to knowledge based upon its utilization must be regarded cautiously.

8.5.3 Participant candor

Despite participants' claims that my presence facilitated the Cycle I discussion, and that they felt comfortable sharing their critical incident accounts with me, confirming participant candor is impossible. Though not evident, it is possible that students masked their emotions and couched their responses to appease me. Additionally, this may have been done in the post-discussion questionnaires, despite student anonymity.

8.5.4 Privacy

Students were instructed not to discuss any aspects of the study with outside parties or even their co-participants. It is possible that some may have violated these terms, thus contaminating the outcomes. If so, any claims about the value of the reflective discussion could be equivocal, as benefits may have stemmed from outside conversations.

8.5.5 Researcher bias and coercion

I entered into this study with a bias toward PFR, believing it to be a more appropriate mode of reflection for the PTA student. Though attempts were made to minimize interpretive bias, such as through member checking and validation using interpretive software, it must be acknowledged that this type of participatory research lends itself to such hazards (Halliday, 2002). Consequently, and in spite of efforts to the contrary, I may have influenced participant views of PFR.

The most salient example of this was during my line of interview questioning (Cycle I) and the post-discussion questionnaire (Cycle II), which may have led students toward

desired responses. For instance, I asked students to comment on ways that PFR was both helpful or unhelpful. Alvesson (2011) does suggest that students need prompting and guidance to reach their own conclusions. But this comes at the risk of leading the students too much. Students need to understand that it is acceptable not to embrace reflective practice, nor to ascribe value where it is absent. This does not infer that reflective practice is valueless; rather, it recognizes that students may yet lack the criticality of thought to correctly assess the worth of their practice. Some students may simply view PFR as a curiosity or an interesting activity that generated some good ideas. They need to be led to a place where they can envision its future utility. This could mean that future questions should be reworded to solicit more open responses.

8.7 Summary

In this chapter, data from the two cycles of reflective discussions, interviews, and questionnaires were analyzed, and the research questions were answered. The trustworthiness of any claims to knowledge was scrutinized, and study limitations were acknowledged. The following chapter provides a summary of the research, outlines suggestions for the implementation of curricular PFR, and reflects on the action research and critical incident analysis methodologies employed. Recommendations for future study and plans for the dissemination of findings are also discussed.

9 Conclusion

This study examined the role that peer-facilitated reflection (PFR) played in influencing the abilities of physical therapist assistant (PTA) students to cope with critical incidents in their academic and clinical coursework. A practice issue was identified: the inability of PTA students to effectively confront critical incidents, which might ultimately harm their academic and professional success. To better develop coping mechanisms, students would need to rely on critical thinking; an ability best cultivated through reflective practice. At the outset, I contended that reflective training within healthcare programs had been marginally effective, a consequence of some of reflective practice's inadequacies. These are identified in the literature and the most salient ones are revisited here: a theory-practice gap, ineffective facilitation, and deficient modes of assessment. In response to the identified shortcomings, peer-facilitated reflection was implemented and assessed as an alternative approach to more traditional modes of reflective practice. A series of questions were posed to assess the efficacy of this methodology. These are presented as a reminder to the reader in **Box 9.1**.

Box 9.1 **Research Questions**

In what ways do PTA students feel that peer-facilitated reflection has helped them to cope with critical incidents, if at all?

What facilitation efforts are required to effectively implement PFR?

How is the efficacy of PFR better assessed in an academic setting?

Every attempt to answer these questions has been made. The answers that have emerged have provided further insights into PFR and reflective practice in general. Moreover, knowledge gleaned has contributed to better practice strategies for the implementation of pedagogical PFR. This concluding chapter summarizes the key findings of this research, lays out recommendations for the implementation of PFR within an academic PTA program, suggests further areas of enquiry, establishes a plan for the dissemination of any knowledge claims, and offers personal reflections on the research process.

9.1 Summary of findings

A vast body of literature offers insights into the theoretical underpinnings of reflective practice, reconciling reflection with concepts of learning. According to Burrows (1995), the scope of literature has become so repetitive that theoretical breakthroughs may be unattainable. Considering this, the research drew heavily upon the extensive work of reflective theorists, but did not, itself, pursue a new theoretical tack. Rather, it confirmed existing theories about reflective practice, including its facilitation and assessment. It also strived to identify best practices by putting various permutations of PFR to the test. These inquisitive approaches sought to answer specific, practice-based questions. The following sections summarize the findings.

9.1.1 The theory-practice gap

Moon (2004) has stressed that reflective process influences learning and outcomes. Historical enquiries have shown PFR to be a suitable method of reflective practice, as it aligns with both constructivist and social paradigms of learning (Habermas, 1974; Kelly, 1955; Platzer, Blake, & Ashford, 2000a). My own discoveries sustained that theory, as a majority of students who engaged in PFR acknowledged that they were able to alter practice approaches in some way to better cope with critical incidents. Students' own commentaries revealed why. Most found the ability to commiserate with peers and hear alternate perspectives freed them to think and act differently; affirming the dialectical and social influence on learning (Carter, 2013; Graham, 1995; Kelly, 1955;

Ladyshewsky & Gardner, 2008; Murray, et al., 2011; Walker, Cooke, Henderson, & Creedy, 2013). A minority did not find utility with PFR, mainly for reasons of disorganized discussions, and feelings of vulnerability and diffidence. It is hoped that all students will recognize the value of reflection and continue to use it to cultivate critical thinking abilities as they enter their professional careers. Feedback suggests most intend to keep reflecting.

9.1.2 Reflective facilitation

Group discussions, though helpful in emancipating students from relying on their own 'theories-in-use' (Argyris, 2003), are rife with difficulties. Several authors note that group discussions can easily derail (Graham, 1995), may pool ignorance (Carter, 2013), or may provoke participant anxiety (Knight, Sperlinger, & Maltby, 2010) if not effectively facilitated. The evidence in this study documents occurrences of each. Furthermore, the study has identified challenges with both faculty-led and peer-led facilitation, as well as issues linked to faculty cooperation in the implementation of curricular PFR. As a result, methods for better facilitation have been proposed. These are based upon guidance from the literature, feedback from students, and through utilization of an action research heuristic. Proposed methods include: providing a thorough introduction to reflective practice that encourages students to envision changes in practice as the starting point, enabling students to lead their own discussions to better prepare them for reflective practice in the workplace, and teaching students how to establish guidelines for maintaining discussion focus. Matters related to faculty cooperation with facilitation efforts are not wholly resolved and are still being addressed at the time of this writing.

9.1.3 Reflective assessment

Assessment of reflection has proven troublesome for many faculty, namely due to its imprecise nature (Sumsion & Fleet, 1996). The ability to reflect is so replete with subjectivity that assessment may be speculative, at best (Eaton, 2016). The assessment model utilized for this study steered a different course, as it enabled the examination of outcomes, not abilities. Though yet to be validated, the assessment instrument did allow for an estimation of PFR's efficacy, based upon changes in

outcomes identified by the students themselves. This has proven valuable in deciding how best to implement reflective practice into the curriculum. Still in its incipient state, the instrument shows promise for more realistic, student-generated outcomes assessment.

9.1.4 Contributions to knowledge

This study has promoted dialogue about broadening the applications of reflective practice; questioning the orthodoxy of more traditional reflective modes. It is not the first study of its kind to do this, as a multitude of authors have extolled PFR for its utility in contributing to transformative behaviors. However, this research has taken a unique course, examining PFR through various lenses by addressing salient shortcomings identified in the literature. Moreover, it has utilized an action research model to generate strategies readily implementable in an academic setting. These strategies, in the form of action plans, have emerged from analysis of the two PFR cycles, inform future cycles for this program, and serve to guide other faculty within and without the walls of SCC that may choose to implement PFR.

This study was conducted in an arena that has witnessed scant research: PTA education. The opening chapter rationalized the dearth of investigative enquiry. Simply, the community and technical colleges which typically house PTA programs in the US are not traditionally engaged in educational research. This is problematic, because at the time of this writing, US PTA programs outnumber PT programs 351 to 236 (Commission on Accreditation in Physical Therapy Education, 2017). Yet, most physical therapy educational research is done in PT programs. Though similarities exist between the two types of programs, there are contextual differences that warrant individual avenues of enquiry. This study is a step in that direction.

9.2 Questions for future study

Lewin's (1946) action research model advises the researcher to cyclically plan, implement, and assess, much like Kolb's (1984) model of reflective practice. Following the planning, implementation, and assessment of PFR, the action plan sections of Chapters 6 and 7 expounded on processes for further PFR iterations, with many proposals already implemented. Along a similar vein, I propose recommendations for future directions of research that could extend beyond the scope of this study. These recommendations are generated through an assessment of the study's limitations, as well as from remaining knowledge gaps identified in the literature.

9.2.1 Analysis of the frequency of PFR

Little is known about how often students should reflect in groups. Students in this study recommended one to two reflective discussion a semester, though these suggestions lacked empirical bases. The literature is bereft of the assessment of discussion frequency. Studies regularly cited in this thesis offer some insights, but much is inconclusive. Plack, et al. (2010) had medical students engage in weekly virtual peer reflection with reported positive outcomes. However, such a high frequency may be impractical for face-to-face discussions. Platzer, Blake, and Ashford (2000a) reported on fortnightly reflective meetings of nurses. They failed to comment on how this frequency was perceived by participants, or whether it influenced outcomes. It is worth noting that the cohort was small (6 – 10 members). Scheduling and managing meetings for a full cohort of PTA students may not be as feasible. Tsang (2011a) varied the frequency of PT student reflective discussions from one to five per semester. An ideal number was not identified. Hudson and Hunter (2014), in their study of learning service students, demonstrated that a single reflective discussion was feasible. However, there was no mention of how a single discussion itself influenced outcomes. Burrows (1995) contends that simple models of reflection are more apt to produce success. It is worth asking how simple such models should be. Future enquiry may attempt to seek a balance between a PFR schedule that yields positive outcomes and one that is practical in an academic setting.

9.2.2 Analysis of the timing of PFR

There is no certainty about when to introduce students to PFR. Many authors suggest students respond well to early and continuous reflective practice (Cole & Wessel, 2005; Pretorius & Ford, 2016; Saperstein, Lilje, & Seibert, 2015), though how early remains unclear. In this research, participants were divided about when to first initiate PFR. Enough of them sought for implementation as early as the first semester of the program that those recommendations were heeded: PFR has been initiated in the first semester for the PTA Class of 2019,[14] and results of this endeavor are eagerly awaited. Conversely, the argument that delayed implementation may fortify trust deserves consideration. As a Cycle I participant pointed out, students would likely feel more comfortable with group reflection once they had gotten to know one another better. Eggs (2012) contends that knowledge communities only build trust once members become confident in one another's abilities. This awareness takes time and might support a recommendation for delaying the implementation of PFR. However, no evidence from this research substantiates such an assertion. Consequently, further study could interpret the benefits of reflective practice implemented at different periods in an academic program.

9.2.3 Extramural reflection groups

A principal aim of this research was to train students to develop the critical thinking skills needed to cope with the professional challenges, not just the academic challenges, they may encounter once their careers begin. Having students lead their own reflective discussions granted them the agency to take charge of their problem solving. These discussions were held on campus and were well-regulated in terms of time, structure, and environment. In professional practice, such planning is not always possible or appropriate. Consequently, it may be worth granting students even more license to reflect independently, as this type of reflection is more likely once they embark on their careers. For instance, students may encounter issues that demand immediate attention and dialogue. There may be no time to wait for a scheduled reflective discussion.

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[14] Data is not yet available for this cohort.

Rather, they should be encouraged to form what Carter (2013) has coined 'guerilla groups.' Guerilla groups are spontaneous reflective discussions that arise out of an immediate need. Students or professionals "seize reflective moments and turn these to their advantage" (Carter, 2013, p. 98). In practice, this could be envisioned as students experiencing a collective challenge, forming a group, and extemporaneously problem-solving through reflective dialogue.

The idea of extramural guerilla groups is immediately appealing. First, it may help address the issue of allocating much-treasured class time for reflective discussions. Second, and as important, an intent of teaching students reflective practice is to cultivate lifelong problem-solving habits applicable to professional work. Once students are able to realize the benefits of group reflection, they should be encouraged to form reflective groups at will. This strategy can be carried into clinical practice, serving to resolve professional challenges. As such, it deserves further exploration and investigation as to its efficacy.

9.2.4 Virtual versus face-to-face reflection

The literature is replete with examples of virtual reflection. Surprisingly, of the PT programs that have implemented PFR, most have done so via online forums. The advantages are obviously appealing, as students can converse asynchronously, avoiding the necessity of organizing a meeting. Tsang (2011b) found that online peer reflection can help develop critical thinking skills through peer mentoring and collaborative decision making. Furthermore, as Plack, et al. (2010) found, students appreciated the opportunity to take time to reflect before responding to a classmate. However, drawbacks are evident. Ladyshewsky and Gardner (2008) reported technical difficulties with virtual reflection, and students were prone to misinterpret virtual dialogue in the absence of facial expressions. Also of concern, the behavior of other participants has been shown to influence the level of engagement in online forums (Hew & Cheung, 2010). Effectively, poor demeanor may inhibit peer-to-peer interaction. Nonetheless, the utility of virtual reflection is intriguing, and a comparative analysis of virtual and face-to-face peer reflection would be illuminating.

9.2.5 Validation of the assessment model

The assessment model has demonstrated its worth in that it shows promise as an instrument for evaluating the efficacy of a given reflective approach. The previous chapter acknowledged its limitations, namely due to its lack of validity. To bolster any claims to knowledge for this research, and to affirm its utility for future use, the instrument should undergo a validation process similar to that described in *Section 8.3.3.* Future study can shed light on the utility of this approach to reflective assessment.

9.3 Dissemination of findings

Knowledge should be shared for the betterment of professional practice. The knowledge claims generated from this study, though comparatively small within the scope of reflective practice research, do contribute to its identity. Moreover, they support an alternate reflective pathway; one that is slowly and deservedly being recognized for its facility. To effectively communicate these knowledge claims, a well-considered plan must be established. Dissemination of findings can occur at both the local (institutional) level and professional (physical therapy and general academia) level.

9.3.1 Local level

The PTA program at Sacramento City College is housed in the Division of Science and Allied Health. Departments include: Astronomy and Physics, Biology, Chemistry, Dental Assisting, Dental Hygiene, Geology, Registered Nursing, Occupational Therapy Assisting, and Vocational Nursing. The division itself is explicitly, by Wenger's (2011) definition, a community of practice. Department chairs regularly meet for division meetings to discuss college business, strategize, and share best practices. These meetings provide an opportunity to present study findings and collaborate with colleagues about how they might implement PFR into their own departments. The allied health programs, in particular, are more apt to incorporate curricular reflective practice,

as the implicit expectations of their professions demand it (American Nurses Association, 2015; American Occupational Therapy Association, 2015).

Beyond the division, I am a member of the Department Chair's Council, which includes chairs from all college departments. Bi-monthly meetings afford similar opportunities to disseminate findings.

Finally, college faculty must participate in Flex (Sacramento City College, 2017) activities: faculty training workshops held throughout each semester. The trainings cover a vast array of topics, and any faculty can submit a workshop proposal. These present an ideal opportunity to share strategies for implementing classroom-based PFR.

9.3.2 Professional level (physical therapy)

Professional organizations and journals offer great opportunities to publicize research findings. The American Physical Therapy Association (APTA) holds two national conferences per year: The Combined Sections Meeting and the Annual Conference. Researchers regularly share findings through seminar or poster presentations. State chapters of the APTA also conduct annual conferences, affording researchers the same opportunities. Furthermore, a number of professional journals accept research submissions. The *Journal of Physical Therapy Education* and the *Journal of Physical Therapy*, both US publications, most readily come to mind. Internationally, *Physiotherapy* and the *Access Physiotherapy Journal*, provide opportunities for publication in the UK. And the *Journal of Physiotherapy* is widely read in Australia.

9.3.3 Professional level (academia)

Outside of physical therapy, several journals provide opportunities to publish. The journal *Reflective Practice* is most relevant. Additionally, the following journals have published articles on reflective practice, and would be candidates for submission: *Educational Philosophy and Theory, International Journal of Educational Research, Studies in Higher Education,* and *Teaching and Teacher Education*.

In November 2016, I published preliminary findings of my research at the International Conference of Education, Research, and Innovation (Thompson, 2016). Subsequent action research cycles have generated additional data and conclusions. The plan is to publish several journal articles that address various aspects of this research.

9.4 Reflections

9.4.1 Reflections on action research

Action research proved unquestionably useful. To review, action research is a model of enquiry that favors insider research, in which investigation occurs within an organization and is geared toward enacting practice change. Action research is flexible, adapting to the demands of enquiry, as needed. It is participatory and emancipatory research, in which study participants play a democratic role in the direction of enquiry and with generating practice recommendations. And action research is iterative, relying on cycles of enquiry, planning, and action. At its core, action research is useful for building personal theory (Koshy, 2005) that can facilitate practice changes; a primary purpose of this research.

As PTA department chair, I took advantage of action research's 'insider' approach. I was unconstrained by the limits of external objectivity characteristic of empirical enquiry. Rather, I could discuss research motives with the participants, and share with them what I hoped to accomplish. Moreover, I played an active role in the discussion and interviews (Cycle I), and I was instrumental in teaching students about reflection and guiding them toward more meaningful discussions and action planning (both cycles).

In line with Lewin's (1946) original notions that action research is flexible, allowing the investigator to navigate various avenues of enquiry given the existential needs of the study itself, I was able modify intervention approaches and data collection to better suit the research aims. Following each PFR cycle, I reflected on the data itself and made assessments about what worked and what did not. I drew upon Reason and Torbert's

(2001) 'action logics' to devise new approaches for subsequent cycles; each one steering PFR toward a more beneficial course.

The democratic ideals of action research were upheld in this study. Typically, educational action research is characterized by communities of faculty or policy makers who collectively work toward change. However, in both reflective cycles, student participants assumed stakeholder roles, making recommendations toward future iterations of discussions. Students offered suggestions on the implementation of curricular PFR, the timing and frequency of discussions, topic choices, and the group composition, to name a few. All these suggestions factored into subsequent PFR iterations, and still inform future practice decisions.

9.4.2 Reflections on critical incident analysis

Critical incident analysis also proved a fruitful approach. Akin to action research, it relied on the reflections of participants to elicit practice change. As Dewey (1933) mentioned, reflection occurs in the face of tension. By having students identify specific episodes of tension, critical incidents, they were better apt to effectively reflect and plan for change. The framework of enquiry established by Schluter, Seaton, and Chaboyer (2008) proved beneficial, as it offered a sequence of steps through which students were incited to share personal narratives and develop action plans. Critical incident analysis also harmonized well with action research. Both rely on cyclical iterations of planning, acting, and assessing; features consonant with the reflective nature of this study.

9.4.3 Personal reflections

When beginning this research, my position, influenced by academic literature and personal experience, was that traditional modes of reflective practice were unsuitable for an academic setting. The literature, rightly or wrongly, is rife with criticisms of reflective journaling and portfolio writing. My own journaling, primarily as part of this doctoral program, yielded positive outcomes. Yet I recognized even the fundamental challenges I faced in trying to meaningfully reflect. It took me roughly a year before my journaling evolved from superficially recounting events to inducing practice

improvements. There came a point when I questioned any personal benefits derived from journaling. It was then that I resolved to more closely examine my own practices in the doctoral program – what was working and not working for me – and to use the journal for further personal exploration. Ultimately, journaling became beneficial, but I recognized the considerable effort and contemplative searching needed to make it effective. I acknowledged that similar modes of reflection may pose even greater challenges for my students. Thus, I embarked on a project intending to find a better approach. It is contestable whether PFR revealed itself to be a better approach, but I do consider it a very useful alternative; one that may be more suitable for students in allied health programs, such as PTA.

The research itself has been enlightening and transformative. I have witnessed the benefits that PFR has bestowed upon my students; proving to me that learning occurs as much outside the classroom as it does inside. I have heard and read the stories of my students' troubles, and that has given me compassion for the ordeals they endure. And I have gained a deeper understanding of how they think and act, putting me in closer touch with their learning and development.

From this process, I, too, have developed. My own reflections have enhanced the awareness of my strengths and weaknesses. I better understand how I learn, and I am more aware of ways in which I can challenge myself to learn more. Most of all, I have recognized the value of collaborative learning. Countless hours have been spent studying and writing, yet it has been the social interchanges that have left the most lasting impressions. My students showed this to me.

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Appendix A

UNIVERSITY OF
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Cycle I Recruitment Email

Dear Student,

You are invited to participate in a study evaluating the **Role of peer-facilitated reflection in critical incident analysis amongst PTA students.**

Outcomes of the study should enhance teaching practices in the PTA program

The study will be conducted by:
Professor Irwin Thompson, PTA program coordinator

The Study Involves:
90-minute group discussion at midpoint of the Fall 2015 Semester
15 to 20-minute interview at the end of the Fall 2015 Semester

To Qualify:
You must be a currently enrolled student in the 2nd year of the SCC PTA program
Volunteers will be selected on a first-come, first-served basis

Participation in this study is **entirely voluntary**
No compensation will be offered for participation in this study

If interested, please contact:
Irwin Thompson, PT, MPT
(916) 558-2298
thompss@scc.losrios.edu

Appendix B

UNIVERSITY OF
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Cycle II Recruitment Email

Dear Student,

You are invited to participate in a study evaluating the **Role of peer-facilitated reflection in critical incident analysis amongst PTA students.**

Outcomes of the study should enhance teaching practices in the PTA program

The study will be conducted by:
Professor Irwin S. Thompson, PTA program coordinator

Your participation involves:
Allowing data to be collected from submitted written post-reflection questionnaires. Reflective discussions are threaded throughout the course of the program. Following discussions, volunteers will complete written questionnaires which involve answering questions about insights gained from the peer-reflective process itself. Questionnaires are non-graded, and responses are kept anonymous and confidential.

To qualify:
You must be a currently enrolled student in the SCC PTA program

Participation in this study is **entirely voluntary**
No compensation will be offered for participation in this study

If interested, please contact:
Irwin Thompson, PT, MPT
(916) 558-2298
thompss@scc.losrios.edu

Appendix C

UNIVERSITY OF
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Participant Information Sheet (Cycle I)

Research Project Title
The role of peer-facilitated reflection in critical incident analysis amongst physical therapist assistant students

Version Number & Date
Version 1
March 2015

Invitation
You are being invited to participate in a research study. Before you decide whether to participate, it is important for you to understand why the research is being done and what it will involve. Please take time to read the following information carefully and feel free to ask me if you would like more information or if there is anything that you do not understand. Please feel free to discuss this with your friends, relatives and colleagues if you wish. I would like to stress that you do not have to accept this invitation and should only agree to take part if you wish.

Thank you for reading this.

Purpose
The purpose of this study is to determine how peer-facilitated reflection can help physical therapist assistant (PTA) students overcome critical incidents in an academic setting. A critical incident is any event that is deemed important to you in your academic studies, and that may trigger a positive or negative emotional response. How well an individual responds to critical incidents has been shown to influence professional practice. Few studies have examined responses to critical incidents in terms of academic outcomes. Peer-facilitated reflection involves groups of students discussing their academic experiences. Many students keep reflective journals as a way to monitor and improve their own learning. Peer-facilitated reflection offers an alternate means by which to accomplish these same goals. During group discussions, students will share examples of critical incidents they have encountered in class or lab. Students will discuss how they coped with those incidents, and the group will reflect and offer suggestions for improving approaches in the future. The group setting is designed for other participants to offer different ideas and perspectives, all with the expectation that each participant will come away from the process with a better understanding of how he/she can cope with critical incidents as they arise. Data from this study will be utilized to make recommendations intended to improve the curriculum in the PTA program at Sacramento City College (SCC), and may be used for recommendations in other departments or institutions.

This research is being conducted to fulfill the requirements of a doctoral thesis through the University of Liverpool. This research is separate from the principle investigator's role as PTA program coordinator as SCC.

Rationale for Your Participation
You have been chosen to take part in some aspect of the study because you are a second year student within the PTA program at SCC. Should you elect to participate in the study, you will be grouped with other students from your program. No more than eight students will participate in your discussion group.

Do I have to take part?
NO. Your participation is totally voluntary. Even if you choose to participate, at any time you are free to withdraw from the study without explanation or fear of penalty. If you choose not to participate, no data related to you or your work will be used or reported in the research study. It is important to note that student grades will be unaffected based upon participation or non-participation in this study.

What will happen if I take part?
If you choose to take part, you will be asked to:

- Participate in one group discussions at the approximate midpoint of the Fall 2015 Academic Semester. The discussion will last approximately 90 minutes and will be audio recorded. During the group discussions the facilitator, who is also the principle investigator, will ask participants to discuss critical incidents from the classroom, lab, or clinical settings. Each participant will share how he/she addressed any challenges related to the critical incidents, and other group members will offer feedback and their own insights on how the student chose to address the incident, along with any recommendations to improve coping mechanisms.
- Participate in a one-on-one interview with the principle investigator. The interview will focus on your perceptions of how the process of peer-facilitated reflection influenced your ability to cope with critical incidents. The interview should last approximately 15 – 20 minutes and will be audio recorded.
- Abide by provisions of the Family Education Rights and Privacy Act (FERPA) and the Health Insurance Portability and Accountability Act (HIPAA). This means that you will not disclose information about other participants in the study, nor will you share information that arises from participation in the study. Names and/or identifying features of study participants and any patients with whom you may have interacted during your course of study should be kept strictly confidential.

Some of the data you generate through the interview and group discussion will be used to compile an anonymous report/analysis and will be submitted as part of a doctoral thesis at the University of Liverpool. Additionally, the outcomes of this study may drive curricular changes within the PTA program, or other academic programs, at SCC. Specifically, the data being collected for this analysis includes:

- The perceptions of students on how the process of peer-facilitated reflection influenced their abilities to cope with critical incidents in an academic setting.
- Quotes and notes/observations on dialogues of participants (who consent to data being used)

All data will be gathered prior to December 17, 2015, after which time participation in the study will end and no further data will be gathered.

Expenses
It is not anticipated that you will experience any expenses from participating in this study. Should you incur any expenses as a result of your participation, please inform the primary researcher immediately (contact information below).

Risks
It is not anticipated that you will experience any adverse effects from participating in this study. Participants may experience anxiety or embarrassment during group discussions when they are asked to reflect on their educational experiences. Additionally, group discussions may reveal peer perceptions that could be uncomfortable for the individual to receive. Should you encounter any unpleasant experiences as a result of your participation, please inform the primary researcher immediately (contact information below). If the discussion or interview becomes uncomfortable for you, you are free to withdraw from the study at any time without fear of reprisal or negative consequences. Furthermore, the SCC Health Services department offers mental health counselling for those students who wish to avail themselves of this service. The Health Services office can be contacted via email at SCC-HealthServices@scc.losrios.edu or by telephone at (916) 558-2367.

Benefits

The Role of Peer-Facilitated Reflection

Research participants may benefit indirectly through the enhancement of curricular practices that emerge as a result of this study. Participants will not be awarded gifts, compensation, or reimbursement for participating in this study.

What if I have a problem/complaint?
If you are unhappy being a participant in this study, or if you encounter a problem, please feel free to let me know by contacting Irwin S. Thompson at (916) 558-2298 or Irwin.thompson@online.liverpool.ac.uk or thompss@scc.losrios.edu. I will make every effort to assist you. If you remain unhappy or have a complaint for which you feel you cannot come directly to me, then you should contact the Research Governance Officer at the University of Liverpool at ethics@liv.ac.uk. When contacting the Research Governance Officer, please provide details of the name or description of the study (so that it can be identified), the researcher(s) involved, and the details of the complaint you wish to make.

Will my participation be kept confidential?
As the primary researcher, I will not disclose to any third party that you participated in this study. In the study write-up, each participant will be identified by a code, and any data you generate will be kept anonymous. Anonymous data generated from participants in this study will be stored for five years in password protected documents on an external memory drive.

What will happen to the results of the study?
Anonymous results will be compiled and reported within the University of Liverpool to fulfill doctoral thesis requirements and will be shared with SCC administrators and faculty in order to improve practice. Additionally, findings from the study may be published in peer-reviewed academic journals or may be presented at professional conferences. Participant data will be made unidentifiable, which means that not only are names removed, but potentially identifying characteristics and demographic information will also be stripped from any shared data. Data will be maintained for five years on password protected files on external drives and in locked filing cabinets within the principle investigator's office, after which the data will be destroyed.

What if I stop taking part?
You may withdraw anytime without explanation. Results up to the period of withdrawal may be used, if you are agreeable. Otherwise you may request that they are destroyed and no further use is made of them.

Who can I contact if I have further questions?

- **My contact details are:**
  Irwin S. Thompson | Irwin.thompson@online.liverpool.ac.uk | (916) 558-2298

- **The contact details of the Research Governance Officer at the University of Liverpool are**:
  001-612-312-1210 (USA number)
  Email address ethics@liv.ac.uk

Please keep/print a copy of the Participant Information Sheet for your reference. Please contact me and/or the Research Participant Advocate at the University of Liverpool with any questions or concerns you may have.

Irwin S. Thompson   Day Month, Year
_____   _____   _____
Researcher   Date   Signature

Appendix D

UNIVERSITY OF
LIVERPOOL

Participant Information Sheet (Cycle II)

Research Project Title
The role of peer-facilitated reflection in critical incident analysis amongst physical therapist assistant students

Version Number & Date
Version 2
May 2017

Invitation
You are being invited to participate in a research study. Before you decide whether to participate, it is important for you to understand why the research is being done and what it will involve. Please take time to read the following information carefully and feel free to ask me if you would like more information or if there is anything that you do not understand. Please feel free to discuss this with your friends, relatives and colleagues if you wish. I would like to stress that you do not have to accept this invitation and should only agree to take part if you wish.

Thank you for reading this.

Purpose
The purpose of this study is to determine how peer-facilitated reflection can help physical therapist assistant (PTA) students overcome critical incidents in an academic setting. A critical incident is any event that is deemed important to you in your academic studies, and that may trigger a positive or negative emotional response. How well an individual responds to critical incidents has been shown to influence professional practice. Few studies have examined responses to critical incidents in terms of academic outcomes. Peer-facilitated reflection involves groups of students discussing their academic experiences. Many students keep reflective journals as a way to monitor and improve their own learning. Peer-facilitated reflection offers an alternate means by which to accomplish these same goals. During group discussions, students will share examples of critical incidents they have encountered in class or lab. Students will discuss how they coped with those incidents, and the group will reflect and offer suggestions for improving approaches in the future. The group setting is designed for other participants to offer different ideas and perspectives, all with the expectation that each participant will come away from the process with a better understanding of how

he/she can cope with critical incidents as they arise. Data from this study will be utilized to make recommendations intended to improve the curriculum in the PTA program at Sacramento City College (SCC), and may be used for recommendations in other departments or institutions.

This research is being conducted to fulfill the requirements of a doctoral thesis through the University of Liverpool. This research is separate from the principal investigator's role as PTA program coordinator at SCC.

Rationale for Your Participation
You have been identified to take part in some aspect of the study because you are a student within the PTA program at SCC. Should you elect to participate in the study, anonymous data drawn from questionnaires will be used to answer research questions and inform future curricular decisions.

Do I have to take part?
NO. Your participation is totally voluntary. Even if you choose to participate, at any time you are free to withdraw from the study without explanation or fear of penalty. If you choose not to participate, no data related to you or your work will be used or reported in the research study. It is important to note that student grades will be unaffected based upon participation or non-participation in this study. If you do choose to participate, you must wait at least five days from the time of receiving this participant information form before signing a consent form, to be sure that you have had adequate time to review the information provided in this document and to ask any questions, as needed.

What will happen if I take part?
If you choose to take part, you agree to:
- Complete a post-reflective discussion questionnaire from which data will be collected. The questionnaire should take approximately 15 minutes to complete. Reflective discussions are threaded throughout the course of the program, and each semester PTA students will participate in at least one peer-facilitated reflective discussion of approximately 90 minutes in length. Following discussions, participants will complete a questionnaire which seeks information about the efficacy and utility of the process, used to improve reflection for future PTA classes. Questionnaires will be submitted electronically through the Desire to Learn (D2L) online education platform and will be collected by a third-party from outside the PTA program who will anonymize submissions. If you agree to participate, you are consenting to allow anonymous information from your questionnaire to be used. Discussion content will remain private, as no faculty members will be present.
- Abide by provisions of the Family Education Rights and Privacy Act (FERPA) and the Health Insurance Portability and Accountability Act (HIPAA). This means that you will not disclose information about other discussion participants, nor will you share information that arises from the discussions. Names and/or identifying features of study participants and any patients with whom you may have interacted during your course of study should be kept strictly confidential.

Some of the data you generate through the questionnaire will be used to compile an anonymous report/analysis and will be submitted as part of a doctoral thesis at the University of Liverpool. Additionally, the outcomes of this study may drive curricular changes within the PTA program, or other academic programs, at SCC. Specifically, the data being collected for this analysis includes:

- The perceptions of students on how the process of peer-facilitated reflection influenced their abilities to cope with critical incidents in an academic setting.
- Anonymous quotes from questionnaires of participants who consent to data being used. Participants will be assigned a pseudonym.

All data will be gathered prior to December 15, 2017, after which time participation in the study will end and no further data will be gathered.

Expenses
It is not anticipated that you will experience any expenses from participating in this study.

Risks
There are minimal risks associated with participating in this study. Though I make every effort to ensure your privacy and confidentiality, other study participants could potentially share personal information about you from the reflective discussions. Therefore, all students are asked to not disclose any information about other students from the discussions. Students may experience anxiety or embarrassment during group discussions when they are asked to reflect on their educational experiences. Additionally, group discussions may reveal peer perceptions that could be uncomfortable for the individual to receive. Should you encounter any unpleasant experiences as a result of participation in group discussions, please inform your instructor immediately. The SCC Health Services department offers acute interventions by trained nurses and academic counselors and referrals to outside mental health resources, should participants need to avail themselves of these services. The Health Services office can be contacted via email at SCC-HealthServices@scc.losrios.edu or by telephone at (916) 558-2367. Participants may also access mental health services through the Sacramento County Department of Health & Human Services: http://www.dhhs.saccounty.net/BHS/Pages/Mental-Health-Services.aspx or (916) 875-1055. Additionally, participants may seek support from their primary care physician. You are free to withdraw from the study at any time without fear of reprisal or negative consequences.

Benefits
Research participants may benefit as a result of the reflective processes in which they engage during part of the study. Future cohorts of PTA students may benefit through the enhancement of curricular practices that emerge as a result of this study. Participants will not be awarded gifts, compensation, or reimbursement for participating in this study.

What if I have a problem/complaint?
If you are unhappy being a participant in this study, or if you encounter a problem, please feel free to let me know by contacting Irwin S. Thompson at (916) 558-2298 or Irwin.thompson@online.liverpool.ac.uk or thompss@scc.losrios.edu. I will make every effort to assist you. If you remain unhappy or have a complaint for which you feel you cannot come directly to me, then you should contact Dr. Stuart McGugan, who is the primary research supervisor, at s.mcgugan@hull.ac.uk, and/or the Research   Participant Advocate at Liverpoolethics@ohecampus.com or 001-612-312-1210 . When contacting Dr. McGugan or the Research Participant Advocate, please provide details of the name or description of the study (so that it can be identified), the researcher(s) involved, and the details of the complaint you wish to make.

Will my participation be kept confidential?
As the primary researcher, I will not disclose to any third party that you participated in this study. At the beginning of the research, each participant in the study will be assigned a pseudonym, which will be used to identify them in the study write-up. Any data you generate will be kept anonymous. Anonymous data generated from participants in this study will be stored for five years in password protected documents on an external hard drive.

What will happen to the results of the study?
Anonymous results will be compiled and reported within the University of Liverpool to fulfill doctoral thesis requirements and will be shared with SCC administrators and faculty in order to improve practice. Additionally, findings from the study may be published in peer-reviewed academic journals or may be presented at professional conferences. Participant data will be made unidentifiable, which means that not only are names removed, but potentially identifying characteristics and demographic information will also be stripped from any shared data. Data will be maintained for five years on password protected files on external drives and in locked filing cabinets within the principal investigator's office, after which the data will be destroyed.

What if I stop taking part?
You may withdraw anytime without explanation. Results up to the period of withdrawal may be used, if you are agreeable. Otherwise you may request that they are destroyed and no further use is made of them.

Who can I contact if I have further questions?

- **My contact details are:**
  Irwin S. Thompson | Irwin.thompson@online.liverpool.ac.uk | (916) 558-2298

- **The primary research supervisor's contact details are:**
  Stuart McGugan | s.mcgugan@hull.ac.uk

- **The contact details of the Research Participant Advocate at the University of Liverpool are**:

001-612-312-1210 (USA number)
Email address liverpoolethics@ohecampus.com

Please keep/print a copy of the Participant Information Sheet for your reference. Please contact me and/or the Research Participant Advocate at the University of Liverpool with any questions or concerns you may have.

Irwin S. Thompson   9 May, 2017   *Irwin Scott Thompson*
  Researcher   Date   Signature

Appendix E

UNIVERSITY OF LIVERPOOL

Committee on Research Ethics

PARTICIPANT CONSENT FORM

Title of Research Project:	The role of peer-facilitated reflection in critical incident analysis amongst physical therapist assistant students
Researcher(s):	Irwin S. Thompson

Please initial box

1. I confirm that I have read and have understood the information sheet [dated Day, Month, Year] for the above study. I have had the opportunity to consider the information, ask questions and have had these answered satisfactorily.

2. I understand that my participation is voluntary and that I am free to withdraw at any time without giving any reason, and without my rights being affected. In addition, should I not wish to answer any particular question or questions, I am free to decline.

3. I understand that, under the Data Protection Act, I can at any time ask for access to the information I provide and I can also request the destruction of that information if I wish.

4. I agree to take part in the above study.

Participant Name	Date	Signature

Name of Person taking consent	Date	Signature

Researcher	Date	Signature

Researcher:
Irwin S. Thompson

The Role of Peer-Facilitated Reflection

Work Address:
Sacramento City College
3835 Freeport Blvd., Sacramento, CA 98522 USA
Telephone: (916) 558-2298   Email: thompss@scc.losrios.edu

Optional Statements   **Please**
                                                               initial box

- I understand that confidentiality and anonymity will be maintained and it will not be possible to identify me in any publications

  ☐

- I agree for the data collected from me to be used in future research and understand that any such use of identifiable data would be reviewed and approved by a research ethics committee.

  ☐

- I understand and agree that my participation will be audio recorded and I am aware of and consent to your use of these recordings for the following purposes:
    - To better guide reflective discussions as a component of this research
    - To serve as data for observational notes as a component of this research

  ☐

- I understand that I must not take part if I withdraw or am withdrawn from the academic program from which I am enrolled at Sacramento City College.

  ☐

- I agree for the data collected from me to be used in relevant future research.

  ☐

- I understand that my name will not be linked with the research materials, and I will not be identified or identifiable in the report or reports that result from the research.

  ☐

- I understand that I am to maintain in the strictest confidence any information that arises as a result of participating in this study.

  ☐

- I understand that in abiding by the Family Educational Rights and Privacy Act I am not to disclose any information about other study participants.

  ☐

- I understand that in abiding by the Health Insurance Portability and Accountability Act I am not to disclose any identifying information about patients with whom I have come into to contact as part of my academic program or this study.

  ☐

Appendix F

UNIVERSITY OF
LIVERPOOL

Committee on Research Ethics

PARTICIPANT CONSENT FORM – DISCUSSION FORUM

Title of Research Project:	The role of peer-facilitated reflection in critical incident analysis amongst physical therapist assistant students
Researcher(s):	Irwin S. Thompson

Please initial box

5. I confirm that I have read and have understood the information sheet [dated Day, Month, Year] for the above study. I have had the opportunity to consider the information, ask questions and have had these answered satisfactorily.

6. I understand that my participation is voluntary and that I am free to withdraw at any time without giving any reason, and without my rights being affected. In addition, should I not wish to answer any particular question or questions, I am free to decline.

7. I understand that, under the Data Protection Act, I can at any time ask for access to the information I provide and I can also request the destruction of that information if I wish.

8. I confirm that I am at least 18 years of age.

9. I agree to take part in the above study.

_____	_____	_____
Participant Name	Date	Signature
_____	_____	_____
Name of Person taking consent	Date	Signature
_____	_____	_____
Researcher	Date	Signature

Researcher:
Irwin S. Thompson
Work Address:
Sacramento City College
3835 Freeport Blvd.
Sacramento, CA 98522 USA
Telephone: (916) 558-2298
Email: thompss@scc.losrios.edu or Irwin.thompson@online.liverpool.ac.uk

Appendix G

The role of peer-facilitated reflection in critical incident analysis amongst physical therapist assistant students

Peer-facilitated discussion and interview guidelines (Cycle I)

Overview

Physical therapist assistants are expected to enter the profession as critical thinkers; those who are able respond to events in practice, rather than simply following sets of rules or procedures. Critical thinking is best cultivated through reflective thought. Reflection is an intentional activity whereby the individual recalls an event and attempts to make sense of it. It requires a description of the event, an analysis of the event, a strategy for change, an implementation of the strategy, and a re-evaluation of the effectiveness of the strategy. Often, reflection is done in isolation through journaling or via an assignment. This study veers from the traditional approach and relies on peer-facilitated reflection; that which occurs openly in groups.

Group discussion procedures

1. Study participants will meet in Mohr Hall, Room 31 at 3:00 pm on Tuesday, October 6th.The discussion is expected to last approximately 90 minutes, though participants should plan for at least 2 hours.

2. Each participant will be randomly assigned a number. Participants, in order, will be asked to recall and share with the group a critical incident that they experienced at some point during the academic program. A critical incident is an event which has left a lasting impression upon the individual, and that may have triggered a negative emotional state that could have influenced the person's learning. Critical incidents are often stressful, and may represent particular challenges for individuals. Examples of critical incidents may include: a written or practical exam; learning a new skill; or a challenging interaction with a patient, classmate, or instructor.

3. Once the narrator has shared the relevant details of the significant incident, the group facilitator will ask him/her a series of questions related to that incident.

4. Group members will next question the narrator about the facts of the shared account. The aim of this questioning is to uncover any assumptions or biases the narrator may have about the incident.

5. Group members, including the narrator, will then take a few minutes to reflect on the incident, and to envision strategies for coping with the described incident.

Essentially, the group should try to think of ways that the narrator could have better handled the incident.

6. Group members will share their strategies with the group.

7. The narrator will be asked to consider the suggestions and to discuss how he/she might put them into action.

8. The process will repeat itself with each group member.

9. At the conclusion of the discussion, participants are asked to be aware of any critical incidents that arise over the remainder of the academic semester. Group members should attempt to implement action strategies developed during the discussion as a way to cope with such incidents.

One-on-one interviews
1. Participants will schedule a one-on-one interview with the principal investigator during the final two weeks of the Fall 2015 Academic Semester.

2. The interview should last approximately 15-20 minutes. Participants will be asked questions about any critical incidents that rose since the group discussion.

3. At the conclusion of the interviews, participants will have no further obligation for the study.

Considerations
1. Study participants must maintain confidentiality during and after the course of this study. Names and events are not to be shared with others, nor should study participants engage in discussions with one another about the nature or events of the study.

2. Study participants agree to engage in respectful discourse with one another during the group discussion. Participants will be sharing personal accounts which may be emotionally charged, potentially leaving them in a vulnerable state. Dialogue should be professional, and participants should avoid sarcasm and must refrain from personal attacks. It is acceptable to disagree, but not to argue.

3. Though lively discourse is encouraged, participants are asked to respect the authority of the group facilitator with keeping the discussion on topic.

4. Participants should feel free, at any time, to ask questions of the facilitator and seek clarification during the course of the discussion.

5. Participants retain the right to withdraw from the study at any time without fear of reprisal.

Appendix H

Questioning strategies for group discussion

Imagine one of your peers has just recounted that he became 'unnerved' during a practical examination because of what he described as unfair treatment from the exam preceptor. The 'unfair treatment' and the 'unnerving' contributed to him failing the practical examination. It is your responsibility to separate fact from perception and bias. You may wish to ask your classmate to further describe the treatment to determine whether those actually occurred or were simply perceived by the student. You may also wish to ask questions about your classmate's state of mind entering the practical exam, or his level of preparation. You may want to find out if your classmate had experienced similar occurrences in the past. A line of questioning such as this will help you to determine whether or not the preceptor was truly unfair, or if some other factors contributed to his negative practical exam experience.

Questions might include*:*

1. *How well did you prepare for this practical exam as compared to previous practical exams?*
2. *Were there any particularly challenging components to the practical exam scenario?*
3. *Have you been assessed by this preceptor before?*
4. *Do you hold any personal convictions regarding the preceptor?*
5. *Was there anything else going on in your life at the time of the practical exam that might have influenced your performance?*

Appendix I

Cycle I Interview schedule

- How have things gone since the group discussion?

- What were your impressions of the group discussion?

  - In what ways was the discussion helpful?

  - In what ways was the discussion unhelpful?

  - Some themes emerged in the discussion, such as emotions, communication, responsibility, fairness, courage and peer support. Do any of these topics particularly resonate with you? Why?

- Let's revisit your first critical incident. Can you recall what you shared with the group?

- Since the group discussion, have you experienced any critical incidents?

  - **If no**: Are you sure? Can you describe at least some event that caused tension or stress, even if it wasn't as significant as the experience you described during the group discussion?

  - Can you please describe the experience?

    - What made this incident critical to you?

    - How is this critical incident similar to the one you shared with the group?

    - How is it different?

- Can you recall the action plan recommended to you by the group?

  - Were you able to implement the action plan as a means to address the critical incident you described?

    - If yes, how could you describe how you were able to put the action plan into practice?

      - What was the outcome?

- If no, why didn't you feel the action plan would help you?

- In what ways was the action plan helpful?

- In what ways was the action plan not helpful?

- In what ways did my presence at the discussion either facilitate or hinder open dialogue?

- Do you feel that peer-facilitated reflection is an activity you would be willing to engage in again?

  - If yes, why?

  - If no, why not?

  - If this activity was assigned for a grade, would that change your answer?

- Based upon your response, can you recommend ways in which the process of peer-facilitated reflection could be improved?

- How many group discussions do you believe would be beneficial? How frequently do you recommend they be held?

- In what ways do you envision yourself engaging in reflection as part of your professional practice, if at all?

Appendix J

Sacramento City College
Physical Therapist Assistant Program

Peer reflective practice (Cycle II)

Objectives
At the conclusion of this activity, students will be able to:
1. Assess their own performance and engage in self-directed learning activities to enhance clinical performance.
2. Support practice environments that support career development and lifelong learning
3. Demonstrate effective verbal and non-verbal communication.
4. Demonstrate effective problem-solving skills.

Introduction
Reflective practice is a "purposeful form of thought provoked by unease in leaners when they recognize their learning is incomplete."[1] Within the context of healthcare, it is described as "the critical analysis of everyday working practices in order to improve competence and promote professional development."[2]. Reflective practice typically involves intentionally thinking about an event or occurrence, attempting to make sense of the event, considering alternate approaches to address any issues that arose, implementing those approaches, and assessing their effectiveness. Reflective practice is a necessary skill for the healthcare practitioner, as it leads to the cultivation of critical thinking, an attribute associated with better clinical decision making and administration of care. Moreover, reflective practice can help the PTA student more easily understand how he or she makes sense of acquired knowledge, contributing to deeper learning and more enhanced problem-solving skills. As such, reflective practice better enables the PTA student to cope with the myriad challenges encountered throughout the academic program. It is for these purposes that reflective practice is embedded within the Sacramento City College PTA program.

Reflective practice appears in many guises, and no one method is preferable to another. Each has its own advantages. In this program alone, students are asked to engage in reflection via assignments and online group discussion boards. Other methods include reflective journals, portfolios, and, for the purposes of this activity, peer-reflective discussions.

Peer reflection involves sharing personally meaningful experiences with one's classmates in safe and structured discussions. Classmates ask questions about the experience and offer recommendations for action that may help address similar events in the future. Follow-up discussions assess the efficacy of any tried approaches. Peer

reflection is well-suited to the clinical arena, as it aligns with the oral traditions of healthcare practitioners who often engage in their richest, most meaningful discussions face-to-face. Thus, what is learned in the classroom can be implemented in professional practice.

Reflection, like any skill, demands practice. Peer reflection is no different. Consequently, the following activity is designed to provide a framework for PTA students to develop their reflective abilities so that they may carry those skills into their professional work. Before we begin, let us first gain a better understanding of what reflection looks like.

Kolb's Learning Cycle

In 1984, educational psychologist David Kolb[3] outlined a cycle of learning that relies on examining a specific event or experience, reflecting on the event, learning from the experience, proposing new ways of acting, and trying out those ideas. The cycle is iterative, meaning it continues as the individual re-reflects on new experiences and new ways of doing.
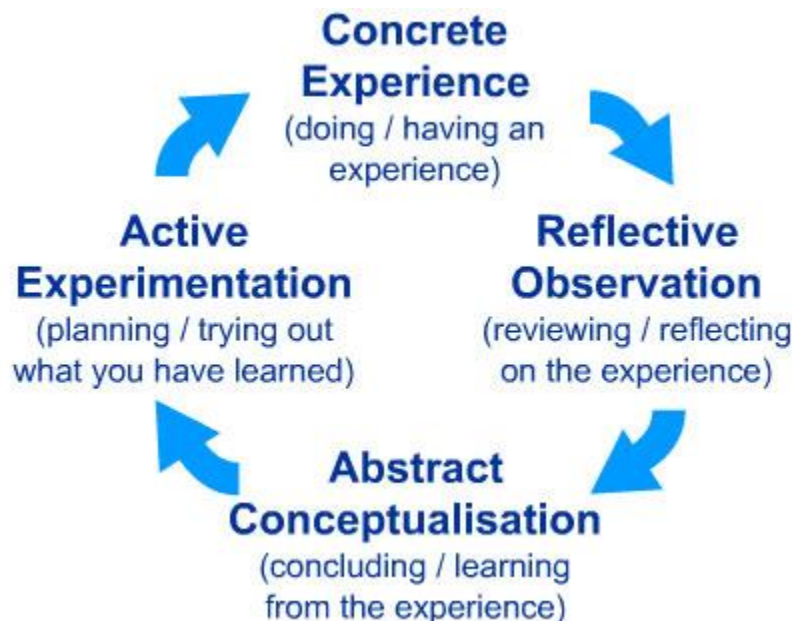
Kolb's (1984) Experiential learning cycle

Kolb's experiential learning cycle is valuable for the PTA student because it allows him or her to identify a significant experience, recognize what worked or did not work, come up with and implement a different approach, and assess how that new approach worked. Ultimately, decision-making and practice are improved.

Kolb's experiential learning cycle in action
Let us see an example of Kolb's experiential learning cycle.

Karen is a PTA student who is terrified of practical exams. When preparing with her classmates, she appears to have a good grasp of the material and always performs well. However, come practical exam day she is a nervous wreck. Consequently, during the practical exam she often makes silly errors of omission. For example, on the last practical exam she forgot to wash her hands before treating the patient and she failed to lower the treatment table to a safe height: both critical elements. These are components of the exam that she always performed during practice, yet her nervousness during the exam led her to 'forget' them.

Fearing that she may not make it through the program, Karen decided to confess her failure to two of her closest classmates. She explained what happened during the last exam and how she failed because of those two mistakes. She tried to cast blame on the professor, arguing that "the practical exams are make-believe anyway. I would never forget those things in the real world."

Her classmates listened carefully and cautioned that blaming the professor was not going to help her situation. They asked her why she forgot to wash her hands and lower the treatment table. Karen admitted that she had been very nervous and that "everything just went out the window." One of her classmates, Debbie, confessed that she too became nervous during the practical exams. So as not to miss anything, Debbie had adopted the habit of writing down each required step on a piece of paper. She regularly consulted the paper during the practical exam. It took a little longer, but she never made those careless errors again. Karen thought this was a good idea and agreed to try it during the next practical exam.

At the next practical exam, Karen followed Debbie's advice. She jotted down each of the required elements so that she would not carelessly overlook them. She passed! However, the time it took her to write down each step left her with very little time to complete the practical exam procedures. Karen decided that she liked her friend's approach, but that there must be a better way. She could not afford to run out of time in the future. The last exam was a close call.

Karen reflected on what worked and what did not work during the last practical exam. The list of steps written down helped her to avoid making careless mistakes. The time it took to write down each step left her scrambling to complete the practical exam on time. "What," Karen thought, "If I devise a set of codes for each of the steps? That way I can save time by not having to write out full sentences.

Over the next several weeks, Karen developed a short-hand code for each of the required elements: WH = wash hands; EP = explain procedures; PC = patient consent; TTH = treatment table height; and so on. On the day of the next practical exam, Karen

put her short-hand code into practice. It worked like a charm. Not only did she not forget any of the essential elements, she finished with time to spare.

Reflective practice works!

Kolb's experiential learning cycle dissected
Let us examine Karen's reflective process in light of Kolb's experiential learning cycle.

1. Karen described a *concrete experience*: that of forgetting to perform key elements on the practical exam and consequently failing the exam.
2. Karen *reflected* on the experience with her classmates by sharing her story. Her classmates impelled Karen to a deeper level of reflection, by having her review the events in detail.
3. Though Karen initially tried to blame her professor, her classmates' questions allowed her to recognize that it was, in fact, her nervousness which did her in. Thus, Karen was able to *learn* from this experience, recognizing the source of her difficulties.
4. Debbie, one of Karen's classmates, recommended *trying out* a new approach: writing down the critical elements so that she would not forget to perform them.
5. Karen implemented the new strategy at the next practical exam, providing her with another *concrete experience* on which to reflect.
6. She further *reflected* on what worked and did not work with this new strategy.
7. Karen was able to *conclude* that writing out each step in long-hand was too time consuming.
8. Karen subsequently adopted a *new approach*: writing each step in short-hand.
9. At the next practical exam, Karen was able to *try out* her new strategy, thus providing her with a new *concrete experience.*
10. Karen's *reflections* on the new approach revealed it to be a success.

At this point the cycle stops, because the strategy worked. In many instances the cycle may continue in perpetuity, as the individual re-evaluates and refines his or her approaches. There are no rules that dictate how many cycles one engages in. The process may continue as practice is modified and tweaked to suit the needs of a given situation.

Furthermore, as a consequence of repeated cycles of reflective practice, the student may begin to gain a deeper understanding as to what led to a particular experience. For instance, though Karen found that developing a short-hand code helped her through the practical exam, it did not provide her with any insights as to why she became so terrified of the practical exams in the first place. Further iterations of reflective thinking may allow Karen to tap into some of the fundamental issues that led to her initial struggles. In essence, Karen may need to think about her own thinking, or what Argyris and Schon[4] described as 'double-loop learning,' whereby one makes sense of not just the 'what' of learning, but the 'why' of learning.

Peer-reflective activity

In this, and future semesters, you will engage in peer-reflective discussions.[a] The purpose is to help you develop strategies that allow you to cope with significant events encountered during the program, developing skills that can be brought to the workplace upon graduation. A significant event is any personally meaningful experience, either positive or negative, that resonates with you. As we saw with our reflective practice scenario involving Karen, the experience may be classroom-based, but it could also arise from the clinical sector. The choice is yours. What is most important is that you select an event that you feel comfortable sharing. Some events may be too personal to share. That's OK. Only choose an issue that you feel safe discussing with your classmates.

Procedures for reflective discussion
1. Students will be divided into groups of three to four. Students may create their own groups, as doing so may enhance group trust.
2. In turn, each student will share a narrative of a significant event he or she experienced while in the PTA program.
3. Group members may ask the following questions for clarity:
    a. Has any significantly negative event happened in class, lab, or clinic during the course of the PTA program that has made an impact on your learning? What exactly happened?
    b. What did you think? How did you feel? How did you react?
    c. What do you believe is the origin of this event? *Think about how Karen's nervousness was the origin of her forgetting to perform certain procedures during the practical exam.*
    d. If faced with a similar situation in the future, how do you think you would feel? How would you react? What decisions would you take?
4. Group members may take this opportunity to offer alternate perspectives, if appropriate. *Recall how Karen's friends redirected her frustration toward the professor.*
5. Group members, including the narrator, will think of strategies to cope with a similar event in the future. If the event was a positive one, group members may wish to discuss what about the narrator's approach worked well.
6. The process repeats itself for each member of the group.

Once the discussion concludes, each student is asked to implement the strategies agreed upon by the group. Approximately one month later, students will engage in a follow-up discussion to analyze the efficacy of their approaches and to share any new incidents, as needed.

Discussion Considerations
1. As students may share personal narratives with classmates, confidentiality is important. Students must maintain confidentiality during and after the reflective

discussions. Names and events are not to be shared with others, nor should students engage in discussions with those outside of their peer reflective group.

2. Students agree to engage in respectful discourse with one another during the group discussion. Students will be sharing personal accounts which may be emotionally charged, potentially leaving them in a vulnerable state. Dialogue should be professional, and participants should avoid sarcasm and must refrain from personal attacks. It is acceptable to disagree, but not to argue.

3. Though lively discourse is encouraged, students are asked to respect the authority of the group facilitator with keeping the discussion on topic.

4. Though faculty will not be present for the group discussions, students should feel free, at any time, to ask questions of their instructor and to seek clarification about the discussions.

5. For each narration, one student should be designated the narrator, one student should be designated the moderator, and one student should be designated the timekeeper. The narrator shares a narrative with his or her peers. The moderator is responsible for maintaining discussion focus. The timekeeper keeps track of time to ensure that each student has an equal opportunity to share a narrative.[b]

6. Students retain the right to withdraw from group discussions at any time without fear of reprisal. Please contact your instructor if you no longer wish to engage in group discussions. An alternate assignment can be made available.

Procedures for reflective assignment
At the end of the semester, students will submit an essay which asks them to comment on their experiences with the peer-reflective discussions.

Instructions
Students should answer the following questions in the essay:

1. What have you learned about yourself as a result of the significant event you shared with your classmates?

2. Why do you think you made the particular choices that you did? Would you have done anything differently? If so, what would you have done differently?

3. What specific skills or perspectives did you acquire as a result?

Grading
- Essays are graded 'Credit/No Credit'
- No letter grades are awarded, though students must submit a completed essay to earn course credit
- To earn credit, all questions must be answered thoughtfully and completely. Incomplete essays will be returned for re-submission

<u>Format</u>
- Essays should be at least 500 words in length
- Essays must be typed, double-spaced in 11 or 12-point type
- Essays will be submitted through the drop box on the PTA 122 D2L website
- Essays are due by [TBD]

[a]For students who do not feel comfortable engaging in peer reflection, an alternate assignment can be made available. Please see the instructor.

[b]Additional instructions added to future PFR cycles.

Reference List

1. Dewey J. *How we think: A restatement of the relation of reflective thinking to the educative process*. Chicago: Henry Regnery; 1933.

2. Clouder L. Reflective practice: Realising its potential. *Physiotherapy*. 2000. 86(10), 517-522. doi: 10.1016/S0031-9406(05)60985-6

3. Kolb DA. *Experiential learning: Experience as the source of learning and development*. Englewood Cliffs, NJ: Prentice-Hall; 1984.

4. Argyris C & Schon DA. *Organizational learning: A theory of action perspective*. Reading, MA. Addison-Wesley; 1978

Appendix K

Peer-Reflective Discussion

Procedures for 2nd reflective discussion

1. Students will meet in the same groups as they did during the first discussion.

2. In turn, each student will recount the significant event described during the first discussion, and he/she will share how the action plan developed from the first discussion was implemented. The student narrator should discuss any outcomes consequent to carrying-out the action plan; either negative or positive. If the student was unable to implement an action plan, he/she should explain to the group why this was the case.

3. Group members should ask the narrator why he/she felt the action plans yielded the results they did. Group members should take the opportunity to offer additional feedback and recommendations, as indicated. This may include suggesting different approaches to address future significant events.

4. The narrator should share with the group what he/she learned from the process, if anything. In particular, the narrator should attempt to relate what he/she learned to future academic work and/or professional practice.

5. The process repeats itself for each member of the group.

*It is useful to take notes during the discussion, particularly as any notes will help with any future implementation of action plans.

Appendix L

Sacramento City College
Physical Therapist Assistant Program
Reflective practice questionnaire

Thank you for completing this post-reflective discussion questionnaire. Your responses will help guide future reflective practice within the SCC PTA program. All responses are anonymous and are kept confidential.

Instructions
Please respond to the following questions as thoroughly and accurately as possible. You may submit your completed questionnaire in the 'Reflective Discussion Questionnaire' drop box in the PTA 122 class in D2L.

1. What were your general impressions of the group discussions as a way of engaging in reflective practice? For example, did you perceive the discussions as helpful or unhelpful? Why?

2. In what ways were you able to think differently about the significant event you shared with your peers, if at all?

3. Were you able to implement an action plan from the discussions? If yes, what was the effect of that action plan? If no, why were you unable to implement an action plan?

4. Describe how the actions plan(s) you devised with your group were useful or not useful in helping you cope with new significant events you experienced. Share only as much detail of the event(s) and action plans as you feel comfortable.

5. What did you discover about your own learning and coping strategies after participating in peer reflection?

6. Do you envision yourself engaging in peer reflection as part of your professional practice upon graduation? Why or why not?

7. Please offer at least two suggestions to improve the reflective discussion process. Provide a rationale for your suggestions.

Appendix M

Dear Irwin

I am pleased to inform you that the EdD. Virtual Programme Research Ethics Committee (VPREC) has approved your application for ethical approval for your study. Details and conditions of the approval can be found below.

Sub-Committee:	EdD. Virtual Programme Research Ethics Committee (VPREC)
Review type:	Expedited
PI:	
School:	Lifelong Learning
Title:	
First Reviewer:	Prof. Morag A. Gray
Second Reviewer:	Dr. Viola Manokore
Other members of the Committee	Dr. Peter Kahn; Dr. Ewan Dow; Kathleen Kelm
Date of Approval:	7th May 2015

The application was APPROVED subject to the following conditions:

Conditions

1	Mandatory	M: All serious adverse events must be reported to the VPREC within 24 hours of their occurrence, via the EdD Thesis Primary Supervisor.

This approval applies for the duration of the research. If it is proposed to extend the duration of the study as specified in the application form, the Sub-Committee should be notified. If it is proposed to make an amendment to the research, you should notify the Sub-Committee by following the Notice of Amendment procedure outlined at http://www.liv.ac.uk/media/livacuk/researchethics/notice%20of%20amendment.doc.

Where your research includes elements that are not conducted in the UK, approval to proceed is further conditional upon a thorough risk assessment of the site and local permission to carry out the research, including, where such a body exists, local research ethics committee approval. No documentation of local permission is required (a) if the researcher will simply be asking organizations to distribute research invitations on the researcher's behalf, or (b) if the researcher is using only public means to identify/contact participants. When medical, educational, or business records are analysed or used to identify potential research participants,

the site needs to explicitly approve access to data for research purposes (even if the researcher normally has access to that data to perform his or her job).

Please note that the approval to proceed depends also on research proposal approval.

Kind regards,

Morag Gray

Chair, EdD. VPREC

Appendix N

UNIVERSITY OF LIVERPOOL | ONLINE PROGRAMMES

Dear Irwin Thompson			
I am pleased to inform you that the EdD. Virtual Programme Research Ethics Committee (VPREC) has approved your application for ethical approval for your study. Details and conditions of the approval can be found below.			
Sub-Committee:	EdD. Virtual Programme Research Ethics Committee (VPREC)		
Review type:	Expedited		
PI:			
School:		Lifelong Learning	
Title:	The role of peer-facilitated reflection in critical incident analysis amongst physical therapist assistant students		
First Reviewer:	Dr. Lucilla Crosta		
Second Reviewer:	Dr. Baaska Anderson		
Other members of the Committee	Dr. Martin Gough, Dr. Rita Kop, Dr. Kalman Winston		
Date of Approval:	22/03/2017		
The application was APPROVED subject to the following conditions:			
Conditions			

1	Mandatory	M: All serious adverse events must be reported to the VPREC within 24 hours of their occurrence, via the EdD Thesis Primary Supervisor.		

This approval applies for the duration of the research. If it is proposed to extend the duration of the study as specified in the application form, the Sub-Committee should be notified. If it is proposed to make an amendment to the research, you should notify the Sub-Committee by following the Notice of Amendment procedure outlined at http://www.liv.ac.uk/media/livacuk/researchethics/notice%20of%20amendment.doc.

Where your research includes elements that are not conducted in the UK, approval to proceed is further conditional upon a thorough risk assessment of the site and local permission to carry out the research, including, where such a body exists, local research ethics committee approval. No documentation of local permission is required (a) if the researcher will simply be asking organizations to distribute research invitations on the researcher's behalf, or (b) if the researcher is using only public means to identify/contact participants. When medical, educational, or business records are analysed or used to identify potential research participants, the site needs to explicitly approve access to data for research purposes (even if the researcher normally has access to that data to perform his or her job).

Please note that the approval to proceed depends also on research proposal approval.

Kind regards,

Lucilla Crosta

Chair, EdD. VPREC

Appendix O

Sacramento City College
Office of Planning, Research and Institutional Effectiveness
Research Proposal Review

<u>**REQUIREMENTS OF INVESTIGATOR UPON PROJECT APPROVAL**</u>

- **Ensure that the research participant is not at risk**: This means that the questions asked or the tasks that the participants are expected to complete will in no way harm them. Care must be taken to ensure that questions are not loaded, insensitive or biased in any way. Careful piloting of questions is required.
- **Ensure that participants have given their informed consent:** Informed consent implies that the research participants have been informed with regard to what will be required of them, as well as any danger or risk (physically or psychologically) they may face. The participants must know that they have the right to opt out or refuse to participate at any time during the research.
- **Protect the Anonymity/Confidentiality of the Participants**: Every research project involving human subjects -- particularly those that gather or utilize personal and/or sensitive data -- should have procedures in place to protect the participants' confidentiality and/or anonymity. The investigator must ensure that all data will be reported at the aggregate level only, i.e., no individuals (students, faculty, staff, etc.) will be identified. In order to preserve individual anonymity, in a case where there is a small "n" (less than 10 records) which might reveal the identity of individuals, the researcher(s) will not make the data available. Upon completion of the research study, all data files that contain individual identification data must be destroyed.

Research Approval Is for a One-Year Period

Regarding: Irwin S. Thompson, University of Liverpool, Doctorate of Education Dissertation Proposal, *The role of peer-facilitated reflection in critical incident analysis amongst physical therapist assistant students*

The overall recommendation of the reviewers is summarized below (additional comments may also be attached):

<u>Reviewer 1:</u>
Recommendation (following additional information from the proposer that addressed the concerns noted below): Approve

Comments: Although the study seems low risk the nature of the hypothesis assumes that student stress (critical incidents) will be a common variable among study participants and the participant information forms given to participants should clearly highlight the risks- i.e. discomfort, uncomfortable disclosures in a public setting etc.

The research design clearly offers a flexible and constructivist approach to data collection and is cognizant of the limits involved an action research oriented approach. The researcher notes that he will

collect observations (and make necessary adjustments) during the peer-facilitated reflection; safeguards of that information and the process of collecting those observations would be helpful to ensure student confidentiality. There may also be some limits here to low participation in the peer-facilitated reflection which may be a limit in data collection.

Reviewer 2:
Recommendation: Approve

Comments: If the following statement on page 13 of the proposal relates to the study subjects being students of the researcher, then I believe that my only substantial concern about the study has been addressed.
- The principle researcher will never be in a position to evaluate participating students during the course of the study

However, the researcher may want to make a more-explicit statement about power differentials inherent to the professor-student relationship.

I recommend approval and look forward to seeing the results of this study.

Reviewer 3:
Recommendation: Approve

I agree with both comments and recommendations by reviewers 1 and 2, and I have no additional concerns.

Overall recommendation: Approve
The proposer may wish to consider modifications based on the comments of the reviewers.

Appendix P

Sacramento City College
Office of Planning, Research and Institutional Effectiveness
Research Proposal Review

REQUIREMENTS OF INVESTIGATOR UPON PROJECT APPROVAL
- **Ensure that the research participant is not at risk**: This means that the questions asked or the tasks that the participants are expected to complete will in no way harm them. Care must be taken to ensure that questions are not loaded, insensitive or biased in any way. Careful piloting of questions is required.
- **Ensure that participants have given their informed consent:** Informed consent implies that the research participants have been informed with regard to what will be required of them, as well as any danger or risk (physically or psychologically) they may face. The participants must know that they have the right to opt out or refuse to participate at any time during the research.
- **Protect the Anonymity/Confidentiality of the Participants**: Every research project involving human subjects -- particularly those that gather or utilize personal and/or sensitive data -- should have procedures in place to protect the participants' confidentiality and/or anonymity. The investigator must ensure that all data will be reported at the aggregate level only, i.e., no individuals (students, faculty, staff, etc.) will be identified. In order to preserve individual anonymity, in a case where there is a small "n" (less than 5 records) which might reveal the identity of individuals, the researcher(s) will not make the data available. Upon completion of the research study, all data files that contain individual identification data must be destroyed.

Overall Recommendation: Approved March 2017
Required modifications have been made (see following pages)

Research Approval Is for a One-Year Period

Regarding: The role of peer-facilitated reflection in critical incident analysis amongst physical therapist assistant students, Irwin S. Thompson, University of Liverpool, Doctoral Research Proposal

The overall recommendation of the reviewers is summarized below (additional comments may also be attached):

Reviewer 1:
- All required modifications have been made.

Reviewer 2:
- As the required modifications have been made, recommend approval.

Reviewer 3:
- All required modifications have been made.

Appendix Q

Levels of change in professional identity after a critical incident		
Level	**Variable**	**Type of Change**
I	Critical incident occurrence	Awareness about the critical incident and its relevance
II	Reflection about the critical incident's impact	Change in teacher's discourse
III	New practices – pedagogical strategies	Change in the usual classroom teaching strategies
IV	Learning from the critical incident	Awareness of the changes in conceptions and teaching strategies
V	Learning continuity over time	Changes are permanent in the conceptions and teaching strategies

From Panadero & Monereo (2013)

Appendix R

Levels of change in practice after reflecting on a critical incident *Adapted from Panadero and Monereo (2013)*		
Level	**Variable**	**Type of Change**
I	Critical incident occurrence	Awareness about the critical incident and its relevance
II	Reflection about the critical incident's impact	Change in student's discourse
III	New practices – coping strategies	Change in the usual coping strategies
IV	Learning from the critical incident	Awareness of the changes in conceptions and coping strategies
V	Learning from the reflective process	Awareness of the changes as a consequence of reflective practice
VI	Learning continuity over time	Changes are permanent in the conceptions and coping strategies

Descriptors by level

Level I: The participant is able to identify and describe a critical incident and is able to acknowledge how the incident relates to one's experience.

Level II: The participant is able to recognize the impact the critical incident has had on one's praxis. The participant can discuss the incident from different viewpoints and is able to recognize how one's coping mechanisms lead to experienced outcomes.

Level III: The participant is able to recognize and implement new coping strategies to address the critical incident. If similar coping strategies are used, the participant is able to rationalize their use. The participant offers a description of and an explanation for these strategies.

Level IV: The participant is able to recognize new ways of thinking about the critical incident. The participant is also able to acknowledge changes in coping strategies and the effects of those changes. The participant describes how the new coping strategies are a result of new ways of thinking.

Level V: The participant is able to perceive how reflective practice altered one's ways of thinking and doing. There is acknowledgement of the process itself leading to different praxis and outcomes.

Level VI: The participant is able to demonstrate new ways of thinking and doing that become part of the individual's permanent mechanisms for learning. The individual describes continued learning through reflective practice.