Inquiring into Teaching Games for Understanding:
How Models Based Teaching and Assessment Can Inform Practice

By

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BEd, University of Victoria, 1997

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ABSTRACT

The purpose of this study was to determine if a new teaching model, Teaching Games for Understanding (TGfU), can influence participants' understanding of learning and change their practice.

This practitioner action research took place over one semester and included four physical education (PE) teachers. Two participants taught using the TGfU model and two participants used their typical practice. Collaboration within a professional learning community encouraged a recursive process of learning of critical aspects of practice.

The results of this study indicate that teacher change in PE is possible through the introduction of a new teaching model. The new model enabled a deep analysis of beliefs and led change in practices. For example, the teachers more fully realized the significance of modifying the game (TGfU core idea) to meet their students' ability levels. In particular, how modifying games is most effective when the students decide how the game will be modified, select the criteria for success when playing the game, and are involved in their own formative assessment.

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CHAPTER 1: INTRODUCTION

Rationale

My career as a physical education teacher has, in part, been frustrating. I grew up playing sports and exercising, all along gaining an appreciation for the benefits of leading a physically active lifestyle. Later, I went to university and studied physical education to become a teacher in an effort to pass on these important values to others. However, somewhere along the way it became apparent to me that what I had come to understand about teaching physical education was not yielding the results I expected. My students were not always active, they did not seem to be learning what I intended, and my efforts did not appear to be convincing my students of the importance of being active.

Throughout these years I tried changing aspects of my instruction, but my efforts rarely translated into better learning opportunities. However, what I did come to realize was that changing the way one teaches physical education (PE) is a complex process. It was not simply a matter of altering a few lesson activities, but involves a deep evaluation of one's intentions (aim), teaching practice, and beliefs about how learning occurs. As I began to question these three aspects of my teaching, conversations with my thesis supervisor in conjunction with reflections on my practice began to reveal gaps in my knowledge and subsequently initiated an explanation of my dissatisfaction. I decided to focus my graduate work on the process one goes through to affect change and to follow my supervisor's advice and that of Fullan's (2007): in that "behaviors and emotions change before beliefs – we need to act in a new way before we get insights and feelings related to new beliefs" (p. 41). In doing so, implementing a new teaching model

(Teaching Games for Understanding) with a group of like minded colleagues became the basis of my study as I examined teacher change.

This study sought to determine the extent to which four teachers changed their understanding of learning in PE as a result of implementing a new teaching model. While my colleagues and I did not doubt the potential value of PE, we recognized the challenges and limitations to how we were teaching and that these challenges pervaded throughout the physical education profession. We believed that the current practice being employed by many PE teachers, including ourselves, was not achieving our aim. However, in reading the literature that dealt with implementing teacher change in physical education, I learned that a models' based approach, specifically Teaching Games for Understanding (TGfU), might encourage a different understanding of how students learn in PE, and thereby offer a more effective way to teach and assess games (Butler, 2006). Moreover, collaboration within a professional learning community would enable us to provide each other with the support and feedback throughout the change process (Fullan, 2007). In doing so, I hoped that the participants and I would gain new insight into how students learn in physical education and how we, as teachers, could more effectively teach our students how to be active for life.

Learning Theory and Teaching PE

Change to pedagogy requires teachers to understand how students learn. All teachers base their instructional practices on some understanding of learning, but many teachers do not give enough credence to how learning theory can inform practice (Light, 2008). Instead, most teachers adhere rigorously to a personalized version of how students

learn based on former education, experience, and their beliefs and values (Light, 2008; Munby, Russell, and Martin, 2001). Teacher's beliefs about learning are often deeply ingrained in their persona, culture, and education; thus, change is difficult because beliefs must be altered by new knowledge that is significant enough to transplant the existing knowledge (Munby, Russell, & Martin, 2001). One way to initiate such philosophical change is to embrace a new teaching model in hopes that it will reveal the strengths and weaknesses of one's current practice and therefore provide impetus for change (Butler, 2006).

In looking at other instructional models, a teacher must consider the model's theoretical basis in order to understand how and why it works. As noted by Butler & McCahon (2005), the predominant theory of learning that teachers base their practice on, and the basis of the direct instruction model, is behaviorism. This theory infers that factors in the external environment, such as the teacher, have a predominant role in shaping student behaviour (Rink, 1998). For example, in physical education, the teacher would be regarded as the "keeper of knowledge" and learning would occur when knowledge was transmitted to the students (Butler & McCahon, 2005, p.36). Knowledge is conceived as an independent entity that can be transmitted to another if that person is receptive and capable (Light, 2008).

Conversely, more recent efforts to explain learning in physical education have drawn upon other learning theories such as social constructivism, situated learning, and non linear pedagogy. These theories are based on the assumption that knowledge is created by the learner from a synthesis of past learning and ongoing experiences.

Furthermore, learning encompasses contributions from all aspects of one's environment, is reciprocal, and is not linear (Light, 2008). For example, when students playing a modified 3 on 2 rugby game discover that in order to get by the defense they need to position themselves so that at least one of their players is outside of the defensive screen, they come to understand the concept of overlap in rugby and how it enables the creation of open space. Using a game of this nature allows students to learn directly from the game experience (student centered, situated learning), to collaborate with one another in an effort to build upon previous knowledge (reciprocal actions, social constructivism), and to learn in a more holistic environment that does not require prerequisite skills or overly specialized knowledge. Coming to understand these theories of learning is critical if teachers wish to enrich the learning environment for their students. The adoption of a different teaching model is one way practitioners can observe how changes to practice affect student learning and one's understanding of the learning process (Butler, 2006).

The Value and Detriments of Physical Education

Physical Educators have the ability to provide quality physical education to students and a chance for them to develop the skills, thinking, and attitudes necessary to be active for life (Ennis, 2010). In fact, the essence of teaching physical education lies in guiding learners towards embracing a self-motivated, enjoyable, and active lifestyle (B.C. IRP, 2008). Students that are successful learners of physical education not only have a better chance of maintaining their overall health throughout life; they also have the opportunity to understand how engagement in physical activity can contribute to them becoming lifelong learners through the physical.

For a myriad of reasons, however, physical educators are not meeting this aim. Students perceive that the physical education curriculum is not relevant to their needs and lacks meaningfulness (Cothran & Ennis, 1999; Ennis, 2000; Halas, 2002; Kirk & MacDonald, 1998). Similarly, the way in which we teach games is often not aligned with what most people recognize as valuable in games; namely, the joy of playing a game well with others. While researchers and practitioners such as Ennis (2010) and Hubball, Lambert, and Hayes (2007) suggest potential ways in which games can enhance students' physical, mental, and social development, the prevailing method of games instruction is often not conducive to learning for many students. Therefore, students often lose interest in physical education that is dominated by games because they do not experience success and see little chance for improvement (Ennis, 2000; Ennis, 2010). As a result, physical educators must look to change their practice to ensure that the subject remains a viable part of the K-12 curriculum (Patton & Griffin, 2008).

Games represent a significant portion of the B.C. physical education curriculum, and in fact are often over-represented within many schools' course offerings (B.C. IRP, 2008; Fairclough, Stratton, & Baldwin, 2002). What teachers teach and how they teach is manifested in the instructional model that they employ. An instructional model is a plan for teaching that includes a certain understanding of learning theory, an overall aim for instruction, and teaching and assessment skills, methods, and strategies (Metzler, 2005b). The prevailing model of teaching games in physical education entails a multi-activity curriculum model taught using the direct instructional model (or approach) with a focus on technical instruction. The multi-activity model involves short duration units of

instruction that often lack the time required for teachers to provide quality instruction or for students to develop their knowledge and abilities. Instead, many PE teachers adhere to teaching practices based more on behavioralism in which they expect their students to develop more uniformly much like what happens on their sports teams. As a result, students that are not able to develop their abilities and confidence within this environment and do not have these opportunities outside school are often denied an effective learning environment in their physical education classes (Ennis, 2010).

Metzler (2005b) describes the direct model as "characterized by teacher-centered decisions and teacher-directed engagement patterns for learners" (p. 188). For example, learning goals, the desired skill or concept, organization of practice and play, and feedback are all teacher derived and controlled. Overall, the direct instruction model is designed for teachers to efficiently deliver content to students, maximize practice and play time, and focus on mastery of physical skills within a highly structured environment (Metzler, 2005b). However, while direct instruction may be efficient for relaying information, it may also inhibit the learning process by denying students opportunities to engage cognitively and socially at deeper levels within the learning environment (Butler, 2006).

Technically based instruction assumes that students require grounding in the techniques of the game prior to the commencement of game play (Butler & McCahon, 2005). It favors students with developed abilities and experiences because of the time required to refine sport specific skills. However, while technical instruction certainly has a place in physical education (and indeed is a part of the TGfU model), the sole reliance

on it ignores other aspects of learning such as critical thinking and relating with others as is exemplified in social constructivist learning theory. Thus, reliance on technical instruction limits the learning potential for students (Hopper, 2002).

While the multi-activity curriculum model, the direct instruction model, and the focus on the technical aspects of skill acquisition certainly have a place in physical education, the predominance of these models continues to estrange a portion of our students from physical education. This subsequently marginalizes the discipline of physical education and erodes our opportunity to provide an effective learning environment that embodies active living through social constructivist learning (Kirk & MacDonald, 1998; Light & Georgakis, 2005; Ward & Doutis, 1999).

Teacher Change in Physical Education

Changing practice could be achieved by helping teachers to embrace a new teaching model with the intent of initiating a critical examination of their practice (Butler, 2006). This process includes examining one's beliefs about learning to understand why change is required, implementing new knowledge in a practical and manageable way, seeking the support of leadership to facilitate practical needs to and mitigate time pressures, and seeking like-minded colleagues interested in collaborating (Tan, 2005). In doing so, colleagues must be prepared to communicate thoughts and criticisms in a supportive way, to be motivated for the long term to improvement in practice, and to engage in reflective practice (Keay, 2006). In addition, external expertise should be consulted to fill the gaps of missing knowledge (Keay, 2006). These requirements of change can be satisfied through the development of and participation in a professional

learning community in which groups of teachers collaborate to enhance their practice (Timperley, 2008). Finally, the process of change is difficult when one considers the additional effort that it requires. Motivation for change must begin with one's sense of moral obligation to invoke improvement of learning. Leadership must also emerge to provide support for initiatives to improve learning for students (Tozer & Horsley, 2006; Bechtel & O'Sullivan, 2007).

Models Based Instruction: Teaching Games for Understanding

Teaching Games for Understanding is an instructional model in which modified games are used to create a developmentally appropriate learning environment. Conscious thought about the tactical play is promoted through questioning and the social nature of games is stressed by encouraging student communication and cooperation (Griffin, Brooker, & Patton, 2005). In doing so, a student centered environment is created in which the teacher uses the students' existing skills and knowledge, carefully crafted questions to expand understanding, and targeted skill development to facilitate learning in games. These intervals of learning take place within small sided games or together as a class. In doing so, Griffin, Brooker, & Patton (2005) claim that a "positive interdependence" is created in which students work in small groups using cooperative problem solving and critical thinking to actively construct their own learning together (p. 219). Consequently, a student centered learning situation is created in which knowledge results as a product of the relationship between the environment, the student, and the game task (Chow, Davids, Button, Shuttleworth, Renshaw, & Araujo, 2007). For example, students engaged in a volleyball unit might be placed in complimentary groups and be given the task of

developing their teamwork to attack with three ball contacts. The problem would be identified by students during initial game play that is carefully crafted by the teacher. Next the teacher would organize groups to ensure that they participation and pose specific questions to elicit collaborative problem solving. Finally, students would return to game play to test and refine their solutions. The process directs student attention to the critical aspects of the game and fosters social connections through dialogue about common goals (Hopper, 2002).

This holistic style of learning also encompasses authentic, ongoing assessment carried out within the context of the game by teachers and students. As Earl (2003) comments, assessment contributes to learning by allowing students to reflect upon their learning by consciously thinking about the essence of the game. Teaching Games for Understanding embodies this process of reflective learning by integrating assessment within the game (Griffin, Brooker, & Patton, 2005). While assessment for learning requires constant engagement and effort, it ultimately allows the student to gradually move towards the center of the learning process and thereby understand how to assume responsibility for their own learning. In doing so, assessment as learning and an intrinsic control of how to learn emerges. This is a primary skill in motivating oneself to be active and engaged throughout life (Earl, 2003).

Specifically, the Game Performance Assessment Instrument (GPAI) was designed to allow teachers and students to observe, assess, and record behaviors within all games that give evidence to students' successfully solving tactical problems. The GPAI looks at seven components (base, decision making, skill selection and execution, support, guard,

covering, and adjust) to determine the tactical quality of student performance as they play games. Moreover, the components can be tailored to conform to the requirements of any game and organized to assess different performance measures. For example, game involvement, decision making, skill execution, and support can all be assessed by observing and recording how many successful examples students made and dividing it by the total number of opportunities they had to execute the particular tactical behavior. Finally, total game performance can be assessed by determining an average of the resulting percentages observed (Mitchell, Oslin, & Griffin, 2006). This tool allows teachers to determine student levels of tactical play so that they can design appropriate learning situations, to formatively assess tactical behavior for learning (teacher, peer, and self assessment), and to legitimately evaluate student learning of game play.

In order for teachers to improve learning and add relevance to physical education a change in how we deliver curriculum is required. However, invoking change is more complex than simply rewriting curriculum guides or prescribing new games. It requires teachers to critically examine their practice to determine what works, to engage student learning, and to understand why the instructional model employed works (Light, 2008). Most students are motivated to play games that are fun and if they can perceive being successful. Ensuring that the games meet these two criteria and that learning is present through a socially based system of cognitive engagement may allow students to see more relevance in physical education.

Objectives/Problem Statement

The purpose of this study is to investigate the changes that occur when a different teaching model, TGfU, is integrated into instructional repertoire of two participant teachers. Two additional participants will maintain their typical teaching practices (I am one of the participants is this practitioner action research study and will adopt the new model). Furthermore, the three participants and I will collaborate as a professional learning community to support each other's efforts. Case studies will be created as a tool to analyze the experience of each participant. In doing so I hope to learn more about the process of teacher change and how the experience of introducing a new teaching model affects the intentions, practice, and beliefs of participant teachers. In essence, the purpose of this study will be to examine how the integration of the TGfU model changes the understanding and practice of the four participant teachers.

The research questions include:

1. To what extent can teachers describe and justify the way they teach and assess games before engaging in a series of TGfU based units of instruction?
2. To what extent does implementing TGfU (within a professional learning community) and assessing game play influence the teachers' understanding of their teaching practices?

Operational Definitions

The term student learning refers to students' internalization of knowledge, psychomotor skills, and social skills associated with game play. Learning is measured in authentic conditions (game play) by assessing the evolution of skills, knowledge, with

social and individual behaviour that result from interactions within the course setting. The Game Performance Assessment Instrument (GPAI), peer assessment, self assessment, and teacher observations will be used for assessing students in this fashion.

Teaching games for understanding is a model of instruction that uses modified game play to foster student appreciation and competency in games. The cognitive, social, and affective aspects of games are also developed through teacher design and questioning and problem solving, and peer collaboration (Hubball, Lambert, & Hayes, 2007).

Teacher understanding refers to how teachers perceive and understand how their pedagogical practice affects and is affected by student reactions to instruction. This will be measured through journals, interviews, surveys, and online discussion.

A professional learning community is a group of teachers that collaborate in an effort to improve their practice. Professional learning communities usually focus on specific aspect of their practice and use their own knowledge and often knowledge from an external source within a process of recursive change.

Assumptions

It is assumed that teachers involved in the study will deliver their units as prescribed by the study. Moreover, students will participate in the units of instruction. Necessary equipment and facilities will be available and the units will be delivered within an acceptable time period.

Factors in the study that could have potential affect on the outcome

This study will be conducted between late September and mid December. This will entail between three and five units of Grade 9 or 10 games instruction. The units will

be delivered by myself and three male secondary physical education teachers. All four teachers were aware of the Teaching Games for Understanding model; however, two participants had had recent training in the model. Of the other two participants, one had attended an international TGfU conference, but the other teacher had minimal knowledge of the new model.

Several factors could have affected the results of this study. For example, student participation and engagement is variable and depends on many factors such as ability, understanding of content, the social context, personal condition, current health status, and previous physical education experiences. This variability has a profound effect on how students engage in the learning environment and influences the learning results.

In addition, students had not experienced a unit of instruction delivered using the Teaching Games for Understanding model during their physical education. This potentially affected how they learned within the unit.

Moreover, the teachers involved in the study were all male and had many common experiences in playing competitive team games, in their university education, and in their coaching experiences. These commonalities had an effect on how the participants thought, how they engaged in the study, and how they changed.

The teaching context presented limitations in terms of facility limitations, weather, unit scheduling, and interruptions by other school and extra-curricular functions. Furthermore, due to the nature of this practitioner action research, I assumed the role of both researcher and participant. In addition, the other three participants were long time colleagues and friends. They were well aware of my intent, and we had worked together

in the past. This could have influences how they presented their results. Also, the two participants adhering to their typical practice had knowledge of both models of instruction. This could have influenced their delivery of content and their perception of results.

Finally, participants did not engage in the online dialogue forum. This limited the amount of communication to four face to face meetings. Similarly, semester fatigue influenced how teachers applied themselves to the requirements of the study. As the semester wore on, less data was generated.

Significance

The significance of this study lies in its ability to act as a guide in helping teachers begin the process of iterative change. Teacher change is difficult; it requires time, a reason for change (presumably to question their intent and the purpose of teaching games), and it requires support of administrative leaders, a vision, and collegial networking (Tozer & Horsley, 2006). Some teachers may find that there are structures in place that inhibit their efforts; however, if they are able to join in professional learning communities and gain support from leadership the potential of change may be realized (Hargreaves & Fink, 2006). The avenue for change that this study will examine is the use of a different teaching model. In doing so it is hoped that more effective ways of instruction and assessment will emerge. Moreover, the use of a different teaching model can enable participants to begin to question their practice about the nature of learning, conditions that favor learning, and the relationship between assessment and learning

(Butler, 2006). It is hoped that this design will resonate with other teachers and possibly provide them with information to begin or enhance their own efforts.

CHAPTER 2: REVIEW OF LITERATURE

Introduction

This review of literature will first investigate the focus on the prevailing pedagogy currently used in physical education. Second, this literature review will reveal the nature of teacher change and what is required to initiate and sustain it. Third, the use of a models based approach to teaching will be outlined with a focus on Teaching Games for Understanding (TGfU) as an alternative teaching model focused on improving learning for all students. Finally, the use of assessment to inform practice by teachers for the purpose of change, an often underutilized aspect of the learning process in physical education, will be investigated. The goal of this literature review is to generate a focus for research: to enable teacher practitioners to take a reflexive look at what their beliefs and philosophies are concerning physical education.

Prevailing Pedagogy in Physical Education

The aim of physical education in British Columbia is to "enable all students to develop the knowledge, skills, and positive attitudes and behaviors that contribute to a healthy, active lifestyle" (BC IRP, 2008, p. 11). However, physical education has become increasingly marginalized as a result of its failure to meet this aim and the needs of students (Kirk & MacDonald, 1998; Light & Georgakis, 2005; Ward & Doutis, 1999). Moreover, Cothran and Ennis (1999) agree that many students often feel a sense of alienation as a result of their negative or irrelevant experiences in physical education. These phenomena can in part be related to teachers' adherence to the direct instruction model of teaching, our pedagogical focus on technical development in games instruction,

and the use of the multi-activity curriculum model as the sole mode of delivery of physical education content (Butler & McCahan, 2005; Hopper, 2002; Ward & Doutis, 1999). In fact, Bunker and Thorpe (1986b) stated that their inspiration for the teaching games for understanding model was a result of "many students having had little success in performance based classes, skillful players that were not able to adapt, athletes that were poor decision makers, and children that left school with a poor knowledge of games" (p.11).

Direct instruction has been used throughout the history of physical education as the primary mode of teaching students. It has assumed many labels over the decades, but with the development of models based instruction by Metzler (2005b) the direct instructional model is the most recent and encompasses most of the characteristics of direct instruction. Metzler (2005b) characterizes this teaching model as the teacher assuming the primary leadership role within the learning environment and dictating all aspects of learning and assessment. The intent of this model is to create a highly organized and efficient learning environment in which students receive the maximum number of practice opportunities possible. Moreover, the teacher also provides feedback and advice on how to perform the targeted skills and tasks with students making very few decisions (Metzler, 2005b).

The theoretical foundation of the direct instructional model is based on behaviorist learning theory. In terms of learning, Rink (1998) defines behaviorism as emphasizing the contributions that the environment contributes to the learning process. In physical education the teacher, as the source of knowledge, transmits content to

students through lecture and demonstration (Metzler, 2005b; Butler, and McCahon, 2005). Students subsequently learn by performing or emulating correct renditions of the skill or knowledge and are rewarded for correct performance (Metzler, 2005b; Rink, 1998). This pedagogical process is based on the teacher determining objectives, designing a curriculum in which students usually practice isolated techniques to achieve the objectives, and assessing the outcomes based on students' performance (Butler & McCahon, 2005).

In addition to direct instruction, most physical educators focus their instruction on the technical components of games. This approach dictates that students should hone the technical skills of the game prior to game play and that this technical development will then transfer to game play (Butler & McCahon, 2005). However, Ovens & Smith (2006) state that this transfer of skill from isolated drills to game play is often not achieved because the approach "over-simplifies the game environment the individual is performing in" (p. 73). For example, in proscribing a drill to improve a certain skill, the teacher cannot accommodate each student's current stage of understanding and development; therefore, students are often unable to recognize the drill's value as a teaching tool or the drill is inappropriate for their level of developmental. As a result, students with inherent talent or experience with games are typically more successful, while students of more modest ability or experience often find themselves disengaged because the performance oriented atmosphere often does not appeal to their learning needs (Cothran & Ennis, 1999; Kirk & MacDonald, 1998). Understandably, Light and Fawns (2003) agree that these students often do not thrive in this technical learning environment because they see

little relevance in a program that fixates on the technical aspects of performance to the detriment of cognitive and social dimensions.

Finally, the multi-activity typically advocates short units of games instruction that include skill development and game play. However, Ennis (2010) explains that this approach works against student learning because there is often not enough time provided for meaningful learning or development to take place. Moreover, diversity of student knowledge, abilities, skills, and personalities make the delivery of a technical performance based unit of instruction difficult because students do not have the time to learn and progress in all the activities presented in physical education within each school year. Subsequently, beginner level units are repeated year after year or teachers dispense with instruction and settle for play time in which the goal is to keep students "busy, happy, and good" (Kirk, 2005).

In addition, ignorance of what constitutes meaningful physical education for students is further exacerbated by a lack of attention to how students learn in physical education (Kirk & MacDonald, 1998). While the direct instruction model has served most physical educators, MacPhail, Kirk, & Griffin (2008) state that "curriculum development in physical education has rarely been informed by research on learning" (p.101). As a result, instruction in physical education is informed by individual teachers' varying philosophies and personal beliefs, formal education, and experiences about how curriculum should be delivered (Light, 2002). Consequently, students that are not successful within this learning environment often complete their physical education with inadequate skills and knowledge, and apprehensive and negative feelings about physical

activity that is not conducive to leading an active lifestyle (Cothran & Ennis, 1999; Ennis, 2000).

Invoking Teacher Change in Physical Education

Teacher change is a vast and complex process that requires a number of conditions to be met. First, it requires a reason for change that spurs the teacher to question their practice, to increase their understanding of learning, and to cease current practices that are not effective (Light, 2008; Patton & Griffin, 2008; Ward, Doutis, & Evans, 1999). Second, the establishment of a system of teacher collaboration (i.e. a professional learning community) has been demonstrated to facilitate change because it allows teachers to share their knowledge and thus enhance their understanding in ways that might not be possible to individuals (Tozer & Horsley, 2006). Third, support from leadership, namely principals, is required to ensure that time for planning and enhancing curricular knowledge is available, and to provide resources (Tozer & Horsley, 2006; Bechtel & O'Sullivan, 2007). Finally, it is important for both leaders and teachers to be involved in the development of a clear vision for instruction which include a philosophy of learning that is informed by current research (Tozer & Horsley, 2006; Ward, Doutis, & Evans, 1999; Bechtel & O'Sullivan, 2007; Patton & Griffin, 2008). This vision must be informed by the practitioners' ongoing study and integration of curriculum knowledge, effective instruction, and assessment for learning (Timperley, 2008).

Critical Factors in Teacher Change

In an effort to enhance learning within physical education Patton & Griffin (2008) explain that teachers must first be prepared to not only teach in different ways, but to

alter the way they believe learning occurs. This is a complex issue because it brings into question how teachers understand learning. What is more, inquiries about learning might also lead the practitioner to the question: what is learning and teaching (Munby, Russell, & Martin, 2001)?

While learning theory and philosophy alone cannot guide our practice, they can provide a starting point and a context for questioning one's beliefs and thereby provide an impetus for change (Munby et al., 2001). Specifically, to understand how change occurs we need to understand the nature of teacher knowledge and how it develops. Pedagogical content knowledge describes all aspects of what teachers know about their content and how to teach it. It encompasses their knowledge of the subject they teach, how it is transmitted, and how students are motivated and interested to learn it (Munby et al., 2001; McCaughtry & Rovegno, 2003). This knowledge evolves throughout teachers' lives as a result of their personal, professional, and cultural experiences. As a result of this prolonged and ingrained development, change to teacher's pedagogical content knowledge requires significant effort, an appreciation and acceptance of relevant theories, and a desire to work with peers within authentic settings (Munby et al., 2001; Griffin, Dodds, & Rovengo, 1996).

In addition, it is important that teachers have a grounding in basic teaching skills (such as student management) before they can reflect on enhancing student learning. For this reason, beginning teachers and experienced teachers exhibit different levels of pedagogical content knowledge (Richardson & Placier, 2001). This evolution of experience can enable teachers to expand their thinking from a behaviorist viewpoint of

learning to a constructivist outlook (Richardson & Placier, 2001). This deeper understanding of learning is essential for teachers to begin to question and subsequently change their practice.

Furthermore, understanding how teacher change occurs also involves consideration of the way teachers feel about their practice, profession, students, and learning. For example, in their study of urban teacher change, McCaughtry, Martin, Kulinna, & Cothran (2006) found that teachers' emotional perceptions of socio-cultural, moral, professional, political, and physical components of their practice had a significant impact on their appetite and energy to change their practice. Likewise, Patton & Griffin (2008) reported in their study that personality had a significant influence on the extent and rate in which teachers adapted to change. While some teachers were able to adapt quickly, others needed extensive support and planning to implement the targeted changes.

Despite the fact that many factors are necessary to initiate change, Ward and Doutis (1999) add that it is teachers who inevitably enact change, and professional development is often the primary medium in which change initiates. However, current professional development initiatives are often not always effective because they are not specific to teachers' professional context (Armour & Yelling, 2007). Conversely, Keay (2006) outlines the features of effective continuing professional development: use of external expertise, observation, feedback, and the opportunity for ongoing professional dialogue. Moreover, Keay (2006) also states that collaborative professional learning has to take place within relationships that are respective and supportive rather than

supervisory, and have committed and motivated people that are able to give and take feedback and criticism.

Similarly, in outlining the role of mentoring within their study of reform based teacher development, Patton et al. (2005) highlight several features that characterize effective collaboration between mentors and practitioners working within communities of practice: reflection for improvement through inquiry, respect, fostering a give and take relationship of mutual sharing, and providing time and resources. Although the term mentoring suggests a more hierarchical relationship between participants, Patton et al. (2005) suggest that modern mentoring relationships should resemble the more democratic and collegial professional learning communities. Their characterization of mentoring supports these observations by highlighting features of effective collaboration that are common in both portrayals. Likewise, this is supported by Armour and Yelling's (2007) work that highlighted the high value teachers place on collaborative learning.

Specifically, in looking at how teachers changed their practice, Patton and Griffin (2008) outlined patterns of change that they observed in their case studies of middle school physical education teachers. In their study increased planning and more efficient organization, improved alignment between instruction and assessment, and a shift in teacher role through the adoption of small sided games and peer assessment constituted the interventions. Also noted was the constructivist nature of the study: teachers were able to construct their own meanings as the changes were implemented and evolved (Patton & Griffin, 2008). This is consistent with Kirk and MacDonalds' (1998) view of

situated learning: a prevailing theory of learning being used to base the teaching games for understanding model.

Finally, Tan (2005) confirms the conditions that favor implementation of innovative policies in his paper that deals with the Singaporean Ministry of Education's attempt to embrace the Teaching Games for Understanding model. In his recommendations for helping teachers implement change, Tan (2005) suggested teachers should be prepared to examine their philosophies, replace old knowledge with new knowledge, have access to practical examples of the curricular changes, and to have the support of leadership and necessary resources (including time). Most importantly, Tan (2005) highlighted the potency of establishing a core of motivated teachers dedicated to improving learning. Collaboration within such groups serves to mitigate the chances of failure and creates a situation in which the group feeds off its successes. Eventually, this continuity of innovation spreads to other parts of the learning community (Tan, 2005).

Professional learning communities allow for meeting many of the aforementioned conditions needed for change. Professional learning communities develop when a group of like minded teachers come together in a sustained effort to question their practice for the purpose of improving learning (Hargreaves & Fink, 2006; Timperley, 2008). In order to have an effect, they require certain conditions to exist. For example, change begins with a teacher(s) acknowledging a problem with their teaching and subsequently questioning their practice; however, change is not this simple and does not evolve similarly for all people (Armour & Yelling, 2007; Patton & Griffin, 2008). While people are motivated and organize for different reasons and in different patterns, successful

professional learning communities often demonstrate particular attributes that coincide with the strength of their participants and contribute to their success. Fullan (2007) outlines these critical elements: “reflective dialogue, deprivatization of practice, collective focuses on student learning, collaboration, and shared norms and values” (p. 148-149). In addition Fullan (2007) explains two conditions that are required for professional learning communities to exist. The first is structural and includes “time to meet, physical proximity, interdependent teaching roles, communication structures, and teacher empowerment and school autonomy” (p.149). The second condition is cultural and entails “openness to improvement, trust and respect, cognitive and skill base, supportive leadership, and socialization (of staff)” (p. 149). As is evident, the qualities of successful professional learning communities encompass many of the same conditions necessary for teachers to change their practice. Moreover, an explicit structure is laid out to ensure success. As a result, Professional learning communities have the potential to provide a collaborative solution to the problem of how to invoke teacher change.

External Deterrents, Leadership, and a Vision of Teacher Change

Changing one’s practice to improve learning is not easy. Teachers often face many external, and at times uncontrollable, barriers such as a lack of time for planning and curricular knowledge improvement, lack of support from colleagues and leaders, a lack of materials and facilities, and conflicting district practices, priorities, and policies (Patton & Griffin, 2008; Ward, Doutis & Evans, 1999; Bechtel & O’Sullivan, 2007). Additionally, Armour and Yelling (2007) add that teachers often participate in professional development that, while providing rich and vast amounts of information, is

not specific to their teaching environment and therefore not readily useful in their efforts to improve. Finally, teachers are at times mandated by governing bodies to implement systemic top down curricular changes that are ill-conceived, under-funded, or poorly organized (Ward & Doutis, 1999).

For these reasons, change to practice often meets resistance from teachers that are not willing or unmotivated because they do not see the relevance of the professional development to their current teaching situation (Armour & Yelling 2007; Tan, 2005). In an environment of directed change or stagnation, efforts to improve learning conditions occur slowly, not at all, or are only carried out by a few individuals.

Finally, it should be noted that not all deterrents to change are external. Fullan explains that at times teachers themselves prevent progress by "silently play[ing] the privatization card…they find privatization a lot less risky than opening the doors of the classroom,…especially to colleagues" (p. 149). In addition, Fullan (2007) concludes that establishing professional learning communities is simply hard work because it is "about changing culture" (p. 149).

Therefore, positive leadership that is focused on learning is crucial. Such leadership first involves facilitating the creation of "a realistic vision – based on alternative possibilities – of better student outcomes, more meaningful curriculum content, or different pedagogical approaches" (Timperley, 2008, p. 17). However, it is most effective if the vision is generated in context by the educational community (professional learning community) and includes exemplars of successful implementation (Timperley, 2008).

Timperley (2008) argues that it is the responsibility of the leadership to ensure that new information is available and understood, that a realistic change-process that challenges existing practice is constructed, that learning opportunities are used productively, and that incentives for participation in the process are available. Finally, this ongoing process of situated learning requires coordination and efficient management to encourage longevity, to avoid competing demands, and to ensure that all efforts are focused on a better understanding of learning (Timperley, 2008).

Ward et al. (1999) states that physical education as a discipline needs to embrace a collaborative mindset of inquiry focused on changing pedagogy if it is to improve learning for students. If this change is to occur, it first requires that teachers' current understandings of learning are challenged. Only then can there be opportunity to consider new ideas and options for change (Timperley, 2008). Currently, professional development for teachers, including physical educators, is often not specific enough in nature to change teachers' practice (Keay, 2006; Ward & Doutis, 1999). If teacher and student learning is to be enhanced this has to change.

Ward & Doutis (1999) note that if physical education is to avoid further marginalization, old practices not based on our current understandings of learning need to be reflected upon and improved. In working towards solutions, Armour and Yelling (2007) advocate that further research needs to be done to understand how teachers learn, what they learn best during practice, how to accentuate these phenomena, and how this learning translates to student learning. Finally, Butler (2006) adds that implementation of

a new model of teaching is one way to initiate the critique of one's practice, expose weaknesses, and potentially improve learning.

Models Based Teaching, Learning Theory, and TGfU

Models Based Instruction

As Meltzer (2005) pointed out, all teachers use some form of teaching model based on their personal beliefs and philosophies, experiences, education, and how they understand learning. Models attempt to explain the ways in which teachers create learning environments for students. All the factors that are part of the educational environment (content, skills, instructional roles, relationships, activities, and facilities) define the nature of the model and ultimately the nature of learning that occurs. Different models manipulate the contributing factors in ways that create unique environments for learning. Most physical education teachers use some personalized rendition of the direct instruction model with a focus on the technical aspects of game play (Meltzer, 2005).

In an effort to invoke change, examination and trial of a new model (such as TGfU) can aid in reflecting on one's practice and ultimately lead to curricular change (Butler, 2006). However, Rink (2001) suggested that some understanding of learning theory should accompany attempts at change. For instance, it is believed that the theoretical basis for Teaching Games for Understanding (TGfU) could be found in achievement goal theory, information processing theories (cognitivism and constructivism), situated learning theory, and dynamic systems theory (constraints led approach) (Chow, Davids, Button, Shuttleworth, Renshaw, & Araujo, 2007; Griffin, Brooker, & Patton, 2005).

Associated Learning Theories

First, Chow et al. (2007) claim that achievement goal theory contributes in part to a theoretical basis for TGfU by explaining that the nature of properly structured games provides a motivational atmosphere which is meaningful to students. Thus, because developmentally appropriate games have structure and defined outcomes, students find them challenging and are motivated to play.

Second, Kirk & MacPhail (2002) explain that information processing approaches such as cognitivism and constuctivism support the need for learners to develop their ability to not only to move, but to make decisions and solve problems within game play. Cognitivism suggests that declarative knowledge (game rules, aims, and etiquette) and procedural knowledge (skills, tactics, and strategies) inform the learner of the conditions in which action can take place. Collectively, this domain specific knowledge contributes to strategic knowledge which in turn dictates how a learner will negotiate the parameters of a game (Kirk & MacPhail, 2002). Conversely, by concentrating solely on the physical aspects of play and ignoring the vital cognitive processes, teachers are limiting many students' potential to learn. Of particular concern are students who are of marginal or low physical ability. While these students might have difficulty finding success during skill based instruction, they could be more successful (and therefore increasingly motivated) if the learning environment were tailored to their ability levels and included cognitive and affective aspects of play (Rink, 1998).

Constructivism deals with how learners interact with their environment and use previous learning coupled with present perceptions to construct meaning (Chow et al.,

2007). Constructivist learning in physical education takes place under authentic conditions (usually within modified games) in which the learner faces multiple tasks such as perceiving, decision making, problem solving, and skill execution (Kirk & MacDonald, 1998). Because of the interdependency of the cognitive and psycho-motor domains (often neglected in skill based models), these cognitive processes are highlighted as part of the learning and thereby create a more holistic learning experience (Light & Fawns, 2001). The learner is seen as an active participant within a more individualized, socially and developmentally appropriate environment (Kirk & MacDonald, 1998). Accordingly, the learner constructs their own understanding by fusing past learning with their perceptions of current internal and external conditions (Rink, 1998). While cognitivism and constructivism address the often neglected mental aspects of physical activity, it is thought that their contribution alone is too simplistic to address the complexities of learning during game play (Chow et al., 2007).

Third, situated learning theory, a form of social constructivism, is also used to support the tenets of games centered approaches such as TGfU. Lave and Wenger (1991) used the term legitimate peripheral participation to describe how participation in activities such as games is part of our social experience. Learners use their current knowledge coupled with new learning that is acquired through their physical, social, and cultural interactions with peers and the environment to create their own knowledge (Chow et al., 2007). The learning that goes on is therefore affected by the physical, social, and cultural environment and facilitated by the teacher (Griffin, Brooker, & Patton, 2005). Learners engage in the activity at a developmentally appropriate level

based on their current knowledge, skill, and ability. As a result, a community of practice is created in which students and teachers (or whomever the community includes) collectively create an authentic, personal version of knowledge. Moreover, this community has a significant influence over how the learning is generated because the learning is, in part, a product of the myriad of social and environmental relationships that exist within it (Kirk & MacDonald, 1998). Despite being able to describe how learning happens, situated learning theory currently does not address how learning initiates and therefore cannot fully explain the different processes that contribute to the aspects of the phenomenon (Chow et al., 2007).

Finally, Chow et al. (2007) outline dynamical systems theory and the constraints-led approach in an attempt to fill this gap by focusing on how the various constraints affect the learner's performance. Specifically, this theory addresses how a teacher or player can manipulate constraints to facilitate the desired movement skills and associated knowledge necessary to play games. It is noted that the sophistication of games learning is due to the complex nature of the relationships between the learner, the environment, and the task. Manipulation of aspects of these conditions is what can optimize the game for learning (Chow et al., 2007).

The teaching games for understanding instructional model encompass aspects of all these learning theories to create a communal atmosphere that focuses not only on the psychomotor aspects, but also on the cognitive and social dimensions of games. However, as Griffin, Brooker, & Patton (2005) point out, despite emerging theoretical support, it is not able to completely explain how students learn games within the TGfU

model. In addition, more research needs to be done to explain how teachers apply models such as TGfU to their lessons (Kirk & MacPhail, 2002). By investigating teaching practice through a new teaching model, some pertinent questions need to be addressed such as: “How do we know learning is taking place? What is the best learning environment? How does assessment inform learning? How do we assess ourselves” (Butler, 2006)?

The Teaching Games for Understanding Model

Bunker and Thorpe (1986) developed the teaching games for understanding model in an effort to allow students to enjoy participation and feel motivated to play and appreciate the benefits of games (Griffin et al., 2005). As Hubball, Lambert, & Hayes (2007) point out, the underlying theme of TGfU is to shift the focus of learning games from solely technical instruction to include affective and cognitive aspects also found within games: tactical awareness and decision making skills, and affective aspects such as cooperation and communication. In TGfU, Griffin & Patton (2005) add that instruction includes the use of developmentally appropriate, modified games to facilitate maximal participation, interaction, and understanding. Game appreciation is also highlighted to ensure students are versed in the rules and conditions of play. Finally, clear criteria are used to guide, direct, and assess learning. Attributes of this model are designed to emphasize the interrelationships between the individual, the task, and the environment and strives to integrate players’ cognitive and affective development along with their psychomotor development (Light & Fawns, 2003).

In addition, Mandingo, Butler, & Hopper (2007) outline four pedagogical principles exist in TGfU including game sampling, representation, exaggeration, and tactical complexity. Sampling refers to exposing students to different games with similar tactical characteristics to gain an appreciation for the similarities and differences between games. To facilitate this games have been classified into four categories: target, net/wall, striking, and invasion (Mandingo, Butler, & Hopper, 2007). Second, representation involves the use of condensed, or small sided, games that contain the same tactical structure as the full game for the purpose of simplifying and focusing on that tactical aspect (Mandingo, Butler, and Hopper, 2007; Hubball et al., 2007). Third, exaggeration of a game means altering one or more of the secondary parameters of the game, such boundaries or goal sizes, to overstate that parameter. Finally, tactical complexity includes using a progressive approach to games by modifying them so that students can participate and be successful. Progressions include on and off the ball engagements in which games are modified to meet the developmental level of the participants (Mandingo, Butler, and Hopper, 2007; Hubball et al., 2007).

These descriptions encapsulate the present working model of TGfU, but researchers and practitioners also have developed and refined another critical aspect of the model: assessment. For example, Grehaigne and Godbout (1997) and Mitchell, Oslin, and Griffin (2006) have developed their respective versions of team game assessment procedures that allow teachers and coaches to assess their students and for students to assess their own progress as they learn and develop. However, the potency of assessment does not simply lie in its ability to inform the teacher, but also in its capacity to inform

the student. Indeed, Earl (2003) agrees that both of the assessment procedures can be used in peer and self assessment activities so that students have the opportunity to learn and practice self-reflective qualities that are critical for effective learning.

The infusion of a base of theory has also led to advances in the research and practice of TGfU. Attempting to explain how students learn in physical education for the purpose of informing practice is one of the leading challenges that scholars currently face (Griffin, Brooker, & Patton, 2005). In this regard, Kirk and MacPhail (2002) suggest modifications to the TGfU model that emphasize the relatedness of student's "perspective, game concept, thinking strategy, cue recognition, technique selection, and skill development" as a focal point for teacher attention during instruction (Griffin & Patton, 2005, p. 8). In the same fashion, Light and Fawns (2003) reinforce the holistic nature of games involvement and claim that TGfU's use of language and cognition allow the emergence of mind and body development. As such, these qualities demonstrate the learning potential that is revealed by delving into new teaching models such as TGfU: a more holistic learning experience that involves not only psychomotor development, but also the integration of thinking and being within games. Accordingly, these qualities are applicable to students' lives, assessable, and transfer to the world we live in (Hubball et al., 2007). However, while the model has been around for some time, more research is required on how teachers use this model and how students learn within the model.

Research into Teaching Games for Understanding

Past empirical research into the Teaching Games for Understanding model comparing it with technique based direct instruction styles has yielded mixed findings.

For example, while Rink (1996) found that students who participated in TGfU performed better on tests of tactical knowledge, the tactically instructed groups did not show any notable benefits over the technically instructed groups. Furthermore, Turner and Martinek (1996) compared students' knowledge, skill, and game performance in a 15 lesson field hockey unit. The games for understanding group scored higher on passing decision making and execution, declarative and procedural knowledge, but the skill based group passed faster. Similarly, Mitchell, Griffin, & Oslin (1995) found that students' off the ball movement was superior using the tactical approach.

However, many studies have yielded less positive results. For example, Turner and Martinek (1999) found little difference in the learning results comparing different models. Similarly, Gabriele and Maxwell's (1995) study of squash players did not demonstrate a notable difference in skill execution, but TGfU students did show better shot selection. In the same fashion, other studies that attempted to discover which model is superior (Mitchell, Griffin, and Oslin, 1995; Griffin, Oslin, and Mitchell, 1995; and French, Werner, Rink, Taylor, and Hussey, 1996), were not able to demonstrate a significant difference between the tactical and technical approaches.

Despite these inconclusive findings and in light of the fact that these studies varied considerably in terms of games, students involved, and variables measured (Chow et al., 2007), Hopper (2002) has suggested that such comparisons "oversimplify the problem of teaching games to students" (p.44). Hopper (2002) explains that it is not a question of which model is more effective, but rather that we have been ignoring the tactical side of games up until now. In order to learn, students first should understand the

purpose of the learning activities (i.e. understand the game tactics) in addition to how to perform technically. As Holt, Strean, Bengoechea (2002) suggest: “skill development is explicitly included in the tactical approaches, just as games play is a part of technical approaches” (p. 164). Indeed, Chow et al. (2007) summarizes by stating that comparing the two models is irrelevant because aspects of both are required and research should instead be focused on how learning occurs within the combined processes.

To illustrate, Mitchell, Griffin, and Oslin (2006) point out that each TGfU lesson begins with a modified game in order to create context for addressing tactical problems. Subsequent skill development is inserted after games as needed to facilitate overall game play. Therefore, the TGfU model seeks to address the problem that many students have within traditional physical education games classes: that the skills and tactics requirements are often too complex for their current level of ability (Gubacs-Collins, 2007).

However, regardless of the model used, the quality of student learning will improve from how well teachers understand, implement, and customize learning for students. As Kirk and MacPhail (2002) describe when talking about their revised TGfU model, “instructional models provide guidelines…, (but) we need to know more about how teachers and coaches use the model (p. 178).”

Being a relatively new model, and despite its potential for presenting a more holistic learning method, innovations such as TGfU continue to meet resistance (Light, 2002). For example, with regards to the debate concerning technique versus tactics instruction, Kirk and MacPhail (2002) comment that “teachers and coaches rarely made

connections between the technique practices and how and when those techniques should be applied in the game (p. 178).” Similarly, Light (2008) testifies that teachers sometimes fail to regard the importance of theoretical base of their practice, preferring more practical avenues of information; however, he adds that all practice is based on some type of theory. Nevertheless it is important that teachers consider curricular models, such as TGfU, and their theoretical basis because it can stimulate thought about one’s beliefs about teaching and learning (Light, 2008; Butler, 1996). Gubacs-Collins (2007) suggests action research as a mode of integrating a new model of teaching, such as teaching games for understanding, in that it allows practicing teachers to “systematically and critically reflect on their work and make changes in their practice” (p. 110).

The TGfU model also demonstrates the importance of expanding one’s practice to include instruction in all three learning domains. To facilitate such a holistic learning model; “the teacher must consider the relationship between the behavioral, cognitive, and affective domains” (Holt et al., 2002, p. 165). While several aforementioned studies have demonstrated affects of implementing TGfU on the psychomotor and cognitive domains, the affective domain is not often considered. However, engaging the affective domain is important when considering student enjoyment and motivation (Holt et al., 2002). TGfU’s efficacy in developing the affective domain is supported in a study of pre-service teachers’ involvement in a TGfU games unit in Australia. Whereas some of the student teachers involved had negative memories of physical education class (i.e. exclusion, failure, and embarrassment), they described the TGfU unit as inclusive, social, and enjoyable. What is more, some students claimed that while their skills did not improve

remarkably, their new understanding of the game contributed to a sense of accomplishment and enjoyment (Light, 2003).

Similarly, Harvey, Wegis, Beets, Bryan, Massa-Gonzalez, and van der Mars (2009) found that implementing the TGfU model in handball unit for grade six students yielded "significant changes in student perception of learning and effort regardless of skill level…[but different for] boys and girls" (p. 111). Thus, the nature of the TGfU lessons in this study enabled students to feel like they were learning and participating more than was typical in their PE classes.

When considering lifelong activity, motivation and how it is accrued becomes an important factor. As Holt et al. (2002) explains, enjoyment and accomplishment promote motivation; however, it is often the case in physical education classes that performance and competition takes precedence. This phenomenon is apparent in a McCaughtry and Rovengo's (2003) study on student teacher's development of pedagogical content knowledge in which they describe how student teachers came to change their thinking about learning. Initially, the student teachers displayed poor understanding of the need to match tasks to student abilities, failed to apply an understanding of youth motor development, and did not regard student emotion. As a result, students were blamed for being off task or not progressing as the student teacher had envisioned. However, McCaughtry & Rovengo (2003) point out that the student teachers assumed that their students had similar desires, experiences, and feelings about sport than they did. These examples of negative teacher behavior usually continue if not corrected for several reasons. First, they are based on long standing beliefs and practices determined by one's

formal training (including teacher education) and personal understanding of learning (Munby et al., 2001). Second, such beliefs and associated behaviors will not change unless a convincing and practical alternative is presented (Timperley, 2008). Accordingly, this student teacher group did receive instruction throughout their practicum that allowed them to reflect upon their understanding and see an alternative way to promote learning that was more student-centered (McCaughtry & Rovengo, 2003).

Similarly, Light and Tan (2006) expand on this theme in their study that analyzed how culture impacts teaching and learning. The authors described how several Australian student teachers developed their regard for physical activity. Success, failure and the accompanying emotional and social ramifications contributed to how each person felt about their participation in physical activity (Light & Tan, 2006). Moreover, student teachers in Singapore were also involved in an effort to highlight the significance of how different cultures contribute to that population's value of physical activity (Light & Tan, 2006). It was found that the teaching games for understanding model enhanced student teachers' confidence in themselves as a participant and their regard for sport (Light & Tan, 2006). Of note, student teachers' impression of TGfU was positive because it fostered inclusion, student understanding, learning through social interaction, and an overall sense of accomplishment and enjoyment (Light & Tan, 2006). In fact, in a separate but similar study by Light (2002), student teachers with negative experiences in physical education changed their regard for games after experiencing a TGfU unit. This is encouraging in that it suggests that students with lower motivations can come to appreciate and enjoy games in quality learning environment (Light, 2002).

Overall, the teaching games for understanding model appears to foster a more holistic learning environment in which the development of skills and knowledge is accompanied by positive socialization, and conscious thinking about content and behavior through engagement in student centered games. People's conception of physical activity and games is developed as a result of their experiences and social and cultural values. While negative experiences in school physical education and community involvement can have lasting impressions on people's motivation for lifelong activity, the teaching games for understanding model can remedy this by giving students a more positive overall impression of physical activity. While we still do not understand how the way we teach affects student learning, adoption of a model such as TGfU may lead teachers towards greater understanding of this process and how their practice affects it.

Assessment For and As Learning in Physical Education

Learning and assessment are inherently intertwined. One cannot learn without frequently assessing to determine if progress is occurring. For example, Earl (2003) explains that students evaluate their condition and situation repeatedly during learning and compare it to what they conceive as success. Typically, in a physical education class, it has been the job of the teacher to assess students' progress for the purpose of evaluating learning and reporting; however, effective assessment can take on a more complex identity. For instance, assessment can provide feedback to students, inform the teacher of student progress, provide data and evidence for recording student progress, and guide instructional and curriculum change (Earl, 2003). Moreover, assessment need not be done

solely by the teacher. In fact, Black, Harrison, Lee, Marshall, and Wiliam (2003) add that self assessment done by students can potentially yield a richer learning experience.

Furthermore, attempting to assess multiple students, all of whom have differing experiences, abilities, knowledge, and attitudes towards physical activity makes assessment in physical education a complex endeavor. Understandably, assessment for and as learning requires student engagement, the teacher to act as a facilitator rather than a director, and sustained adherence. If such conditions exist the potential for deep learning is heightened (Black et al., 2003; Timperley, 2008).

In *Assessment for Learning: Putting it into Practice* Black et al. (2003) describe how data collected from the King's, Medway, Oxfordshire Formative Assessment Project was used to help teachers transform their practice. Four aspects of formative assessment were highlighted: questioning, feedback, sharing criteria with students, and peer assessment. Both questioning and feedback were seen to strengthen communication between the teacher and students (Black et al., 2003). For instance, Black and Wiliam (1998) state that "feedback is used to [recognize]…the desired goal, [provide] evidence about present position and…a way to close the gap" (p. 6).

Black et al.'s (2003) use of questioning and feedback falls in line with the holistic nature of TGfU and its fostering of communication and cognitive engagement through questioning (Butler, 2006; Hubball, 2007; Butler, 1997). It is through this recursive process of formative assessment that a more consistent, student centered form of learning may emerge.

Similarly, the use of peer assessment allowed students to practice collaborative learning, to formulate a more objective understanding with regards to what the intended outcomes are (which is necessary for peer and self assessment), and to see different levels of quality within the learning (Black et al., 2003, p. 31). Again, this enrichment of learning is desirable and compatible within the teaching games for understanding model and situated learning theory (Butler, 2006; Butler, 1997).

Earl (2003) also states that facilitating effective peer and self assessment is critical for students to become intrinsically motivated, reflective learners. These qualities are also fundamental to teaching games for understanding (Butler, 2006). When students initiate, are involved in, and monitor and regulate their own games they have achieved a functional level of physical literacy.

Learning through effective assessment requires certain conditions within the learning environment. For example, it is imperative that students consciously engage in the learning process (Rink, 2001; Earl, 2003). Engagement enables learning to progress because it allows the student to actively (perhaps subconsciously) assimilate the new information with existing information (Earl, 2003). However, if the gap or the level of cognitive dissonance, between existing and new information created is too large, it will be seem insurmountable and the student may lose interest or motivation (Earl, 2003). This phenomenon is common in games when the game structure is too advanced to allow all participants to engage: the level of dissonance needs to be at a level where the learner can still perceive success. This is the objective of modifying games and manipulating constraints within the TGfU model. Moreover, it is the teacher as facilitator that uses the

modifications of games to aid the learner in making connections between existing information and that which is sought. Nonetheless, many factors including diversity of learner skill and knowledge, depth of teacher pedagogical content knowledge, and the complexity of games ensure that learning in games is a challenging task.

In addition, Earl (2003) states that learning through dissonance (in which self assessment is integral) is hard work. Most people strive for relative stability in their lives, but are willing to venture away from their own understanding if they are either externally motivated (short term), or conversely, if they gain a feeling of success and competence. Moreover, it is learners' contributions to their success that promotes or stifles further learning. For example, if a student believes that their success is a result of their own efforts they will be more likely to be motivated because this is within their control. In contrast, if the learner contributes their success to luck, their fixed ability, or the nature of the task, they relinquish control and therefore see no point in exerting more effort to succeed (Earl, 2003). This is common in physical education classes, particularly as students mature and the ability and experiential gap widens between students. Students that do not have positive experiences in or out of school physical activity eventually "lose their motivation to learn and go to great lengths to avoid the pain of failure, the possibility of public humiliation, and additional conformation of their incompetence" (Earl, 2003, p. 37). Effective assessment within a quality physical education program can stem this process by giving students more control over their learning.

Light testifies to this in several studies in which TGfU was used to teach student teachers of various abilities, ethnicities, and experiences (Light, 2002; Light, 2003; Light

2006). In each of these studies the teaching games for understanding approach was used. Students of differing abilities testified to a sense of learning and enjoyment (Light, 2002; Light 2003; Light 2006). Kirk and MacPhail (2002) also support this finding by suggesting that increased enjoyment equates to higher motivation levels. However, while these studies were successful, the participants were student teachers; grade school students present a range of different learning challenges. For example, it is difficult to instill a sense of intrinsic motivation in teen agers when they have been externally motivated for an extended time and when deep learning presents a heightened risk of failure (Earl, 2003).

Finally, Earl (2003) highlights that learning through assessment takes place in a dynamic, non linear environment of positive interpersonal relationships. This is consistent with Kirk and MacDonld's (1998) and Chow et al.'s (2007) view of situated learning. People learn by interacting with others, acquiring new knowledge from these interactions, and assessing their new understanding by comparing it to their current perceptions (Earl, 2003). For these reasons, the teaching games for education model seeks to create holistic learning situations in which games are not broken down, but simply modified to maintain the tactical integrity in which they were designed. Similarly, assessment tools such as the Game Play Assessment Index and the Team Sport Assessment Procedure (Oslin, 2005) attempt to align assessment of games with the planned learning outcomes of the instructional unit. This alignment is important in creating deep learning opportunities for students (James, Griffin, & Dodds, 2008).

The purpose of the physical education curriculum is to enable all students to learn the skills and knowledge necessary to lead an active lifestyle. The benefits of being active are general knowledge in our society. However, the way in which we deliver the curriculum is not always consistent with this overall aim of a lifelong active lifestyle. Investigating how teachers can collaborate within professional learning communities to explore how to enhance practice is an important step in improving physical education and the health of our population. Moreover, using games as a medium for students to learn the necessary physical, cognitive, and social skills will enable learners to achieve this aim. Currently, a lack of understanding of how learning occurs and devotion to the direct model of instruction are hindering change efforts. There is a need for research that provides evidence into how our teaching practices can be improved through the adoption of a different teaching model. A comparison of current practices and models such as TGfU through practitioner action research can provide valuable information that could lead to improved learning conditions for students.

CHAPTER 3: METHODOLOGY

Research Approach

Qualitative research generally focuses on small sampling groups in everyday settings and "seeks to understand the meaning of an experience to the participants in that specific setting" (Thomas, Nelson, and Silverman, 2005, p. 346). Furthermore, qualitative researchers regard all observations as subjective, due to our variable perceptions, and therefore seek to understand the particularity of the experience. Often, qualitative research entails research of "smaller sample groups" within a "natural setting" to provide "interpretive and descriptive" data analysis (Thomas, Nelson, and Silverman, 2005, p. 346). This study entailed a qualitative look at how teachers' values and beliefs regarding learning changed as a result of participating in a community of practice and incorporating a different teaching model.

My study used a Practitioner Action Research approach so that I (the researcher) could be actively involved (Anderson, Herr, & Nihlen, 2007). Within the context of education, action research is currently understood to entail reflective thinking coupled with a constructivist paradigm in which the teachers use their current experiences to further their understanding and practice (Koutselini, 2008). Specifically, practitioner action research entails the researcher seeks a degree of "collaboration with others that have a stake in the problem under investigation" ((Anderson et al., 2007, p. 3). In this case of teacher change Koutselini (2008) and Li (2008) add that it is collaborative teacher inquiry groups that use their collective experiences and a process of inquiry to enact change. It is this characteristic that makes practitioner action research most appropriate

for teacher learning because it allows teachers to “evaluate the quality of their practice” within the authentic context of the gymnasium (Li, 2008, p. 252).

Specifically, this study sought to address the socially oppressed or disempowered, represented by low skilled and female students, who, as Ennis (2000) has claimed, “are displeased with the current environment and increasingly unwilling to engage” in physical education classes (p. 121). Enhancing public physical education for all students certainly has the potential to create a more aware, healthy, and empowered society. For these reasons, I decided that a practitioner action research study would be most appropriate way for my colleagues and I to investigate how to improve our practice within a collaborative setting.

To compliment this practitioner action research, and in agreement with Stake (1994), case studies were used to profile our experiences in implementing the TGfU model. Case studies are individual profiles that focus on specific issues and problems of practice. Moreover, case studies offer pragmatic and relevant solutions because they are grounded in the participants’ own experiences (Merriam, 1991). These case studies developed as each participant, including myself, engaged in a professional learning community with the intent of sharing our experiences during the study. In doing so, we hoped to discover tangible results that will strengthen our practice.

My research study focused on changing how physical educators understand learning and conduct their practice. Consequently, understanding how to improve our teaching and assessment practices to improve student learning was the overall goal. Kirk & MacDonald (1998) claim that a lack of understanding of how students learn in physical

education that has been a problem for some time. In addition, Munby et al. (2001) states that while effective teaching depends on the understanding of learning theory, it also requires that teachers hone their understanding and skills in the classroom context. In an effort to enhance learning and bring a greater awareness to practice, this study sought to observe the changes that occurred as a result of the implementation of a different teaching model within a professional learning community of PE teachers (Butler, 2006).

Participants

The participants in this study included four secondary physical education teachers. These teachers were employed at two high-schools in the Comox Valley (School District 71). The participants were veteran teachers and had between ten and fifteen years of experience. Moreover, all participants were at least aware of the TGfU model. James and I also attended an International Conference on Teaching Games for Understanding and Brad was enrolled in a TGfU masters program. Brad and I also participated in an intensive summer institute devoted to TGfU prior to the study.

The participants were recruited based on their desire to improve their practice and as a result of their interest in TGfU. As each participant was a colleague and friend of mine recruitment included informing them of the study and its details, inquiring into whether they interested in being involved in a critical analysis of teacher practice, and the subsequent volunteering of the participants. As a result, four like-minded colleagues came together for the common goal of enriching their practice and enhancing the learning of our students.

Following ethical review approval by the Human Research Ethics Board at the University of Victoria permission was sought from the school board of district 71 and participating schools' principals. Teachers were then formally recruited and completed an informed consent form to ensure that they were aware of the nature of the study and their involvement. While students were not actively involved in the study, they were informed by their respective teachers that a study on teacher learning was taking place and that the method of learning used in the classroom might seem different than normal.

Procedures

Ethical permission, research study proposal submissions, and study design was finalized in August, 2009. Participants then come together in September of 2009 to plan units of study, observation schedules, data gathering procedures, and set a schedule of meeting and interview times. This was an important aspect of planning due to the complexity of organizing the study around participants' teaching assignments, coaching engagements, other duties, and personal lives.

This practitioner action research study entailed two teachers (Steve and James) delivering a games units to their grade 9 or 10 students using their typical teaching and assessment practices. The other two teachers (Brad and I) delivered a series of games units to their grade 9 or 10 classes using the TGfU model. Each teacher assessed their students' learning according to the focus of their instruction: Brad and I used the TGfU model focused on develop of tactical knowledge and subsequent playing skills while Steve and James maintained their attention on assessing technical development.

Teachers' understanding and beliefs surrounding learning was first assessed through a face to face interview and the completion of the Teacher Perspective Index (TPI) online survey (see appendix for the survey and participant results). In addition, participants completed a written self analysis of their TPI survey by answering a series of questions. A series of meetings was then held to organize and conduct the interviews, outline the study and participant responsibilities, and lay out the evolution of the study.

Upon completion of the interviews and the TPI survey, teachers began delivering their games units to their classes. Brad and I used the TGfU model, while the Steve and James adhered to their typical teaching practices. However, as the study progressed, Steve and James understandably began to experiment with aspects of the TGfU model (such as using modified games and questioning) as a result of the collaboration within the professional learning community.

As the semester progressed, all four participants recorded their ideas, perceptions, and experiences throughout the study in learning journals that were submitted electronically weekly. In addition, I had set up a google-groups account and planned for us to discuss our experiences on an online forum. However, I was the only participant that used the forum throughout the study (Steve, James, and Brad contributed to the forum briefly at the beginning and then ceased). As a result, little collaboration was occurring as of the end of October. Upon meeting with all participants it was agreed that face to face meetings would serve our group better. Three subsequent meetings were arranged based on the participants' personal schedules to enable our collaboration to continue.

These meetings usually entailed a free discussion of topics surrounding our practice. I attempted to provide a framework to initiate and focus discussion, but the conversation consistently steered far beyond my intended topics as the group delved into issues that had mutual relevance. For example, during our second meeting, I attempted to focus the conversation towards affective learning; however, my attempts were quickly redirected towards issues pertaining to more general assessment. In this way, my efforts to initiate and focus discussion were fulfilled, but our talks rarely followed a set agenda. Instead, these discussions of pertinent topics evolved from the experiences and opinions of all participants.

Following the completion of the semester's games units a final meeting was arranged to discuss the latest topics of interest and schedule final interviews. All participants also completed a second TPI survey. This data, along with learning journals and meeting minutes was used to determine if teacher's beliefs about learning changed as a result of the use of the TGfU model. Data was then collected, coded using Nvivo 2 and analyzed to determine results and patterns.

Data Collection

I collected the data from the participants before, during, and after the teaching units occurred. The sharing of information and dialogue from our monthly meetings and informal discussions served to create a community of practice that was iterative in nature. Discussions were initiated by me and often entailed focusing on a topic that I thought was pertinent to occurrences during my recent lessons, from informal conversation with the other participants, or from conversations with my thesis supervisor. While our

conversations began with a topic that I wanted to discuss, they generally diverged as the other participants engaged with their own experiences and knowledge. In doing so, we learned from the study as it proceeded. It was this situated learning environment and the participants' perceptions of occurring change that I wished to observe.

All meetings and interviews were recorded, transcribed, and circulated to ensure that we were aware and in agreement of the on-goings of the study. Meetings were held to organize and maintain cohesion throughout the study. First, participants were asked to complete the Teaching Perspective Inventory Survey (TPI) prior to the commencement of the study and after its conclusion in an effort to ascertain their intent, actions (practices), and beliefs about learning (Pratt, Collins, & Selinger, 2001). The survey was repeated after the study to determine if changes had occurred. Second, participants were asked to engage in pre and post-study interviews to collect data on changes to their understanding of learning. Third, participants were asked to contribute to an electronic learning journal after each lesson to record their observations and reflections. Finally, participants had access to an online forum in which they discussed the study as it progressed. This tool was to be crucial as it would have been the medium in which the community of practice interacted and learned from each others' experiences. Questions were to be posed initially, but it was hoped that deeper questions would also arise from the teaching experiences. However, as participation in the forum was not popular and limited to the contributions of one participant, a series of three face to face meetings were scheduled to enable collaboration. Finally, I also kept a field journal to record my experiences and the events of the study as they unfolded.

Data Analysis

All data collected was transcribed and coded using Nvivo 2 in an effort to reveal patterns and themes within the data. Finding a convergence of the data through triangulation was the goal of analysis. I used findings from interviews, journals, meetings, and the Teaching Perspective Inventory Survey to determine how each participant's intent, actions, and beliefs about learning changed throughout the study.

Subsequently, the case studies evolved from this analysis and presented an individual profile of each participant's experience, reflections, and learning. It was my intention to ensure that each case presented an accurate portrayal of the participants' account; therefore, prior to coding, transcribed material was checked for accuracy respectively by each contributing participant. However, as classrooms are complex environments, it was possible that negative results could have occurred in the data sources that were not fully associated with the teaching model or assessment techniques.

It is my intent that the conclusions of this study will resonate with other teachers as they relate our experiences to their own experiences and thereby use the findings to initiate their own improvements to practice. Results are profiled in case studies so that others can learn from them. The goal of this research study was to explore how considering contemporary learning theories as they pertain to physical education, and collaborating within a community of practice can lead to a deeper understanding of teacher change (Chow et al., 2007). The TGfU model used served as the medium in which change occurred and therefore guided our practice as we addressed the issues of learning within our games classes.

CHAPTER 4: FINDINGS

The purpose of this study was to determine if incorporating the TGfU model evoked change in a group of teachers' beliefs about learning and practice of teaching. While the study intended for two participants to adhere to their typical practice and two participants follow a new model (TGfU), the participants' beliefs and practice were not so easily categorized. For example, the pedagogical knowledge of the teachers drawing on the TGfU approach was different, and their application of the new model was novel to both of them. In addition, the teachers who were adhering to their typical practice during the study also had varying levels of understanding of learning theory and how this applied to the application of the TGfU model. While these findings were therefore unique to this group of practitioners, the results nonetheless could be used to inform future research or to guide PE teachers who are asking similar questions about their practice.

Participant Teachers Pre-Study Understanding of and Beliefs about Learning

How physical education teachers believe and understand the learning process is critical in determining what their students will gain from their PE experience (Butler, 2005; Rink, 2001). However, regardless of the teacher's understanding of pedagogy and assessment, learning of some nature will occur. Despite there being much advancement in PE pedagogy, there is still a perception of doubt (and confusion) about the worthiness of what students are learning in PE (Ennis, 2000).

While the participants in this study all embodied a thoughtful and invested dedication to their practice, their reported beliefs about learning ranged widely. Consequently, their evolution of learning throughout the study followed different paths.

As a result, in each case, participants will be profiled to highlight themes that emerged from their experiences in the study. Participants' expressions of these themes defined their understanding of learning. The themes included,

1. similarities in participant education and sport experience and how this influenced their beliefs and practice,
2. how participants understood the aim of physical education,
3. how they understood the learning process,
4. how they defined success in their PE classes,
5. how they conducted assessment of learning.

Steve's Pre-Study Understanding of and Beliefs about Learning

Steve was a veteran teacher of approximately 15 years that taught sciences and physical education. He was active in competitive team games throughout high school and university and continues to play recreational sports. Since graduating from University, Steve has coached team sports almost exclusively throughout his career. At Steve's school, units of instruction are delivered via the linear system (a lesson every second day) and comprise 10-12 lessons in total. Throughout the study Steve taught several games units including volleyball, ultimate, lacrosse, flag football, and soccer using his typical teaching style.

Steve's physical education practice was based on the direct model of instruction and characterized by a focus on technical development within a multi-activity curriculum. The direct model of instruction is defined by Metzler (2005b) as a teacher centered approach in which the "teacher…[says] and the students do" (p. 187). Technical

instruction focuses on the acquisition of the skills required to play a game and the breakdown of those skills to ease acquisition and thereby improve game play (Rink, 1998). Finally, the multi-activity curriculum model advocates delivering a course of study that exposes students to large number of activities. The rationale is that by offering a variety of activities, students will have a better chance of discovering one that appeals to them (Kirk & Kinchin, 2003).

In interpreting the aim of Physical Education each of the teachers in this study described what they believed to be the intent of physical education. For Steve, the aim of PE revolved around a central theme: introducing students to activities associated with healthy living (Interview 1, September 22, 2009). Steve's program resembled the multi-activity curriculum model in which the teacher offered many different activities (i.e. games, dance, and gymnastics) throughout the semester with the hope that students would discover an activity that they like and possibly pursue it further (Interview 1, September 22, 2009). In addition, Steve claimed that the variety of games is designed to foster behaviors associated with healthy living by "keep[ing] kids active, busy…stimulated…to try to develop healthy lifestyles" (Interview 1, September 22, 2009). In defining his aim, Steve also highlighted the importance of fun and enjoyment in PE as a factor for achieving student success. In his pre-study interview he stated that it was important that students perceived PE as being fun and socially engaging (Interview 1, September 22, 2009). In doing so, Steve believed that students would be more likely to develop and maintain a healthy lifestyle.

Steve's understanding of the learning process in PE was based on many factors that have culminated to form his beliefs about learning. First, it was made clear in his pre-study interview that the creation of a safe and comfortable learning environment was important for students to feel comfortable engaging in learning without fear of ridicule (Interview 1, September 22, 2009).

Second, Steve adhered to the technical model of instruction (Metzler, 2005b). Steve believed that in order for students to improve their game play, and thereby feel more confident playing, it was his job to help students develop their skills by breaking them down into smaller components that were easier to learn (Interview 1, September 22, 2009). This process began with an informal assessment of student ability and subsequent planning of what the focus of the lessons should be (Interview 1, September 22, 2009). Steve also highlighted that high levels of skill repetition was important to maximize success and enjoyment. Steve therefore planned each lesson to highlight a different aspect of the game, provided instruction on associated skills required to play the recreational game, and then culminated the lesson with a game (Interview 1, September 22, 2009).

Furthermore, Steve explained that the intent of his teaching was to build on students' current knowledge. Occasionally, a form of discovery learning was used with broader guidelines provided; however, technical instruction through drills and games was usually employed and feedback was provided by the teacher either verbally, or through the teacher participating in the game. Finally, Steve believed that high levels of engagement in skills practice coupled with understanding of the technical aspects of skill

development and strategies of the game was necessary to improve game play (Interview 1, September 22, 2009). For example, during Steve's volleyball unit he taught the basic skills required to play a recreational game: bump, set, and serve. Steve taught and reviewed the basic skills every class. Skill practice followed the lesson in which drills were organized to allow for maximal participation and repetition. After the skill development drills were over, students played a game (Interview 1, September 22, 2009).

As student comfort was recognized by Steve as an important aspect of successful learning, students begin with basic tasks to gain early success. In addition, by ensuring that student groupings were small and that students were able to work with friends, Steve attempted to create a comfortable learning environment. Similarly, modified games were used in some units in place of the full version of games so students were more likely to experience success and therefore want to play again (Interview 1, September 22, 2009). In describing how he ensured a safe and agreeable learning environment, how he broke down skills for effective instruction, and how he used different drills and games, Steve made evident his understanding of how he provided instruction in his PE classes and how students learned.

Steve defined success in his PE classes as seeing enjoyment during play. However, he qualified his explanation by stating that criteria for success varied according to several factors such as the ability levels of the participants, the nature of their social interactions, and their level of effort and enthusiasm (Interview 1, September 22, 2009). Therefore, Steve believed that in order to be successful, a student needed to engage at a high level and successfully interact with classmates. The result of this would be a

successful experience exemplified by student fun and enjoyment (Interview 1, September 22, 2009).

Finally, in terms of assessment, Steve explained in his first interview that his assessment plan for PE was focused mainly on engagement (a 10 point scale is used) and whether students were "trying to get involved … [and] to demonstrate the skill" (Interview 1, September 22, 2009). In addition, a lesser emphasis was placed on successfully demonstrating the given skills. Steve also commented that despite the importance of being fully engaged, it was often difficult to assess student progress because engagement and effort alone do not necessarily transfer directly to what the teacher considers successful learning and correct performance to be. For example, one student may not need to try very hard to successfully demonstrate a specific sport skill, but another student may exhibit extreme effort, yet not be able to perform the task successfully by the end of the unit (Interview 1, September 22, 2009). Overall, Steve found it difficult to assess student learning. His assessment was heavily weighted towards the nature of student engagement in the class, but Steve found it difficult to determine whether students were learning and acquiring the skills that he focused on. In the end, and because of the ambiguity around assessing skill development, Steve predominantly used engagement marks to determine student success.

Steve's understanding of learning in PE was based on many factors including his personal experiences as a student, athlete, and coach; his formal education; and his teaching experience (Munby, Russell, & Martin, 2001). Steve's pre-study TPI scores (see appendix for full details on the TPI and its categories and sub-scores) suggested that he

adhered most strongly to the nurturing perspective (34). This is consistent with Steve's attention to student enjoyment and comfort when playing games. However, while his transmission perspective scores (30) were moderate (which does not align with his use of direct teaching practices), his action sub score for the transmission perspective was much higher than his belief sub score. This may indicate that while Steve did not believe in all of the tenets of the transmission perspective, his action sub score indicate that his teaching practice embodied them.

For Steve, like many PE teachers, the learning environment that he created centered on the teacher acting as the source of knowledge, and focused on the develop of students' technical skills; however, his overall intent was focused on the quality of student participation and enjoyment. In doing so, Steve hoped that students would gain the skills, habits, and confidence necessary to continue playing throughout school and beyond.

James Pre-Study Understanding of and Beliefs about Learning

James had been teaching secondary PE for over 20 years. He has a bachelor's degree in PE and a master's degree in educational leadership. He too was active and successful in competitive team sports while growing up and attending university. In addition, James also has coached mainly team sports throughout his teaching career. Regarding his teaching practice, James adheres mainly to the multi-activity curriculum model with a focus on technical instruction; however, he was exposed to the TGfU model when he attended an International TGfU Conference in 2008 (Metzler, 2005b). Since then James has been experimenting with and integrating aspects of TGfU into his lessons

and continues to learn more about the model when opportunities arise. Throughout the study, James taught the same units as Steve (volleyball, ultimate, lacrosse, flag football, and soccer) and followed his own teaching practices during the study.

James's understanding of the aim of PE revolved around the idea of preparing students to lead a healthy life. In his pre-study interview James explained that this involved having "[students develop] the attitudes necessary to continue with sport…[and] to give them the skills to have the confidence to [play]" (Interview 1, September 22, 2009). He ended his explanation with a series of statements regarding his attempts to get students involved in sports and to keep them active. For example, James believed that it was important for students to develop their athletic skills so that they would have the confidence to continue playing sports. This was achieved by exposing students to sports and keeping them active (Interview 1, September 22, 2009). Furthermore, James commented that another important aspect of games was the social dimension and that the affective lessons learned while playing games transferred directly to life (Interview 1, September 22, 2009).

James's understanding of learning in PE was apparent in his descriptions of how he taught. During his initial interview and in his journal James explained that the learning process relied on the teacher adding knowledge to existing student understanding of the game and that learning occurred throughout the activities while students were doing (Interview 1, September 22, 2009). James stated that his lessons usually began with the minimal amount of information necessary to initiate the game or activity. This might be in the form of basic rules and guidelines of a game or the important cues when learning

or practicing a skill. After this initiation of play, students engaged in the activity to improve their performance through experimentation (Interview 1, September 22, 2009).

In terms of encouraging learning during game play, James used observation and gave verbal feedback, or used freeze game techniques to stop students and discuss aspects of the game and how to improve. James also played alongside students to model skillful play. During these instances James used the opportunity to correct technique verbally or through demonstration, to provide support for students' efforts, and to model how to be a supportive member of a team. In addition, questioning was sometimes used to elicit thinking about the desired outcome (Interview 1, September 22, 2009). As a result, through observations and verbal feedback, demonstrations, and playing alongside the students, James believed he was affecting the physical, cognitive, and social aspects of game play. In doing so, James was using a teacher centered approach in which the teacher acted as the source and distributor of knowledge. James used his expertise to show students the correct way to perform the given skills and to be involved in the game.

In terms of defining success in PE, James stated in his pre-study interview that success was defined by the student's ability to perform the targeted skills correctly within a game setting (Interview 1, September 22, 2009). It is within the full game that skills become integrated with team play and the true intent of the skill can be observed (Interview 1, September 22, 2009). These definitions were apparent in James's learning journal as he explained his efforts to teach technique and successful game play (Interview 1, September 22, 2009).

James's assessment practices entailed evaluating student progress in an authentic setting (i.e. a game). Criteria were used to judge whether or not students had learned the content that was taught. James also noted that his assessment practice was formative in nature. Presumably, this meant that he assessed students for learning throughout the unit and then did a final summative evaluation at the end of the unit. For example, he mentioned giving students numerous opportunities to demonstrate their skill development and how he only assessed things that had been taught and that students had been given time to develop (Interview 1, September 22, 2009). Finally, James stated that he had "[minimal] expectations [for] the skills taught…what your assessment is… and you match them together" (Interview 1, September 22, 2009). This statement reflected James's belief in keeping expectations reasonable and only using assessments that reflected actual learning rather than basing student performance against an imposed standard or on content that students did not have a fair chance to learn (Interview 1, September 22, 2009).

James's understanding of learning in PE was based on his personal experiences and formal education (Munby, Russell, & Martin, 2001). He believed that students needed to play in order to develop their skills and that this would lead to an increase in confidence which would elicit the positive feelings that would lead to more involvement. James stated that it was the teacher's job to guide students in their play with feedback and modeling and that success in the game was indeed the overall indicator of success. Accordingly, James's TPI scores highlighted apprenticeship (34) as his dominant teaching perspective. In addition, he had strong scores in nurturing (33) and transmission

(31). Moreover, James's apprenticeship sub-scores were quite consistent (beliefs-11, intentions-12, actions-11) indicating that his practice was in line with what he believed about learning. These scores portrayed James as a caring teacher who was actively involved in delivering the curriculum to students through the medium of playing games.

Brad's Pre-Study Understanding of and Beliefs about Learning

Brad had been a PE teacher for over 12 years and at the time of the study had recently enrolled in a master's degree program that focused specifically on the TGfU model. At the time of the study Brad had completed an intensive summer institute that focused on the TGfU model and current associated research. Brad completed his undergraduate degree at the same university as the other participants and was also heavily active in numerous competitive team sports during his youth. Coaching team games has also been a focus and Brad has taken this endeavor to a high level coaching at the school, provincial, and college levels. During the study Brad used his knowledge of the TGfU model to teach his volleyball, badminton, and soccer units.

According to Brad, the aim of PE is "to provide students with knowledge and some skills to allow them to maintain physically active and healthy lives" (Interview 1, September 24, 2009). It was noted that Brad qualified the expectations of skill acquisition by mentioning the importance of understanding when learning games. He went on to mention that not only are games mandated by the Ministry as content, but they are also a more interesting and enjoyable activity that can be used to teach all aspects of human movement. Moreover, games are a part of our society (Interview 1, September 24, 2009). Therefore, Brad believed that in order to satisfy the aim of PE, teachers use games (as

prescribed in the PE curriculum) as a medium for students to develop the skills and knowledge necessary to maintain a healthy lifestyle.

Brad's pre-study understanding of learning was based on the premise that students learn games by playing them. However, he also stated the importance of student engagement during games, students being prepared to take risks and to make mistakes, and that effective instruction was vital for student success (personal communication, September 24, 2009). This last aspect was consistent with Brad's strong score on the transmission perspective (of the TPI) in that he believed it was important for teachers to pass on knowledge to students regarding how the game should be played (Interview 1, September 24, 2009). Furthermore, Brad explained that it was his intent that students take this knowledge, add it to their existing understanding, and produce a game that "might be similar but not exactly like the game" (Interview 1, September 24, 2009).

In addition, Brad's understanding of learning was reflected in his teaching practice when he discussed not only development of skills and playing ability, but also the importance of understanding the game (Interview 1, September 24, 2009). This was evident in his pre-study interview as Brad described lessons that used modified games and the use of questioning to elicit student understanding of game tactics (Interview 1, September 24, 2009). Often, these lessons incorporated discussions (presented in the form of a question to be solved) with small groups of students or discussions amongst students themselves. These strategies, a critical aspect of the TGfU model, place an onus on the student to engage in a student centered learning process by consciously solving tactical problems; however, Brad continually emphasized that it was the teacher that

orchestrated the learning conditions indicating his adherence to a teacher centered learning environment (Interview 1, September 24, 2009). For example, Brad mentioned that he set the parameters for student behavior, he created avenues for leadership in which students with higher levels of ability or understanding could help others, and he assured that everyone had a chance to contribute to discussions and question answering (Interview 1, September 24, 2009). In doing so, Brad was attempting to create a more engaging learning environment for students, but he remained in direct control of many of the learning variables.

In Brad's opinion, student success looked like enjoyment. However, students' enjoyment also depended on a perceived improvement in game play (Interview 1, September 24, 2009). Brad added that student skills might not be highly developed, but if students were demonstrating an understanding of how the game should be played and how to accomplish this then they were successful and that this would be reflected in their enjoyment of play (Interview 1, September 24, 2009).

With regards to assessment, Brad stated that he was "still working on that" as his practice has been changing (Interview 1, September 24, 2009). At the time of the study, Brad's assessment practices had several areas of focus. One area of focus was on effort and whether students "[were] trying to play the game right" (Interview 1, September 24, 2009). Another focus was on the use of questioning to assess game knowledge in lieu of game or skill performance (Interview 1, September 24, 2009). Consequently, Brad's assessment focused on student understanding of how the game is played instead of how well students could execute play. However, skill improvement was also used to measure

of whether students learned the game skills and tactics that were taught (Interview 1, September 24, 2009). Although this was not explained, presumably, students were assessed prior to and following learning to determine their level of improvement.

It is evident that Brad's beliefs about learning were changing prior to the study as a result of his adoption of the TGfU model. Brad's initial TPI scores were strong in the developmental (41), apprenticeship (41), and transmission (39) categories. Typically, one or two categories stand out as strong, but in this case Brad's responses indicated three strongly held perspectives. Regardless, Brad's results were visible in his testimonies when he discussed the importance of student understanding (developmental) and his role in passing the learning on to students (apprenticeship).

In addition, Brad's adherence to teacher centered learning explains his transmission scores: despite his efforts to invoke a more student centered learning environment (enhancing cognitive understanding of the game to improve play), he maintained that the teacher should be in control of the learning conditions. This explains the disparity within his transmission sub scores: while intent fell at 10 and actions at 14, beliefs were much stronger at 15. These results indicate that while his ideas around the intent (aim) of PE may have been changing, he still had strong beliefs, reflected in his practice that supported a teacher centered style of instruction.

My Pre-Study Understanding of and Beliefs about Learning

At the time of the study I had been teaching PE for 13 years. I also graduated from the University of Victoria's School of Physical Education; however, more recently, I have been working to complete his Master's Degree in Physical Education at the

University of Victoria. As the researcher in this practitioner action research, I was in the unique position of having to orchestrate the study while also being a participant and trying to focus on my practice.

Similar to the other participants, I grew up playing competitive team sports. However, I also engaged in several individual activities such as martial arts and fitness. As an adult, I continue to practice martial arts, weight lifting, and play squash to stay healthy. I also coach team sports and have taught martial arts.

It should also be noted that I am nearing the end of my master's degree program and have been exposed to the principles of TGfU for a longer period of time than the other participants. My TPI scores suggested that my thinking was changing accordingly and that my practice was following suit albeit at a slower pace as I implemented change. For example, my pre-study transmission score (arguably my primary mode of teaching prior to my graduate studies) was 30. However, my sub-scores indicated that while my beliefs came in at 8, my actions were relatively higher at 12. Similarly, my developmental (41) sub-scores were more consistent with beliefs at 12 and actions at 14. These results demonstrate the changes in my thinking that were occurring during the research process.

My beliefs regarding the aim of PE during the pre-study interview were not unlike the explanations given by the previous three participants. However, I defined the aim of PE as a process in which teacher enable students to develop their physical abilities, their understanding of games and cognitive abilities, and their social skills (Interview 1, September 26, 2009). Specifically, the development of how to play games (involving

problem solving and critical thinking) was highlighted as an important part of the aim of PE (Interview 1, September 26, 2009). I also stated that games served as a vehicle for learning many lifelong social skills such as cooperation, communication, and negotiation. While these qualities require time to develop as we play games, I pointed out that it is the job of the teacher to bring these topics to a more explicit level of realization throughout the PE curriculum (Interview 1, September 26, 2009). In the end, I believed that the aim of PE is to help students develop their abilities and understanding in an effort to become independent learners and players throughout their lives (Interview 1, September 26, 2009).

As was the case with Brad, I had begun implementing the TGfU model prior to the study. I noted in my initial interview that learning takes place though listening, seeing, and doing (Interview 1, September 26, 2009). Therefore, I used modified games (as per the TGfU model) to create a learning environment that in which students were able to expand their understanding and skills within a game. By manipulating aspects of a small sided game, I was able to focus on the tactics that would advance student play and understanding while maintaining the overall integrity of the game (Mandingo, Butler, & Hopper, 2007). For example, I adjusted the badminton scoring boundaries during his unit so that students could only score in the back half of their mini court. This forced students to use their clearing strokes and thereby create space in the forecourt. If students were having difficulty, skill development was introduced to improve that aspect of play. Students then returned to the game and continued to implement their understanding of the tactic (Interview 1, September 26, 2009).

While physical engagement in the game was the main mode of learning, I pointed out that using questions to elicit student thinking and reflection on what they were doing was important to develop their understanding (Interview 1, September 26, 2009). I also admitted that while the aim of PE is for students to become independent learners, I often reverted to teacher initiated instruction; however, I was slowly making the transition to a more student centered learning environment. For example, I tried to increase student participation in taking care of the logistical needs of the game, elicit student thinking about what makes a successful game, and attempted to enhance student understanding through peer teaching and peer and self assessment (Interview 1, September 26, 2009).

As for the affective aspects of learning, I thought this was the most challenging aspect of teaching PE: how to bring social learning to the fore of student thinking and conscious learning. I found this challenging because it was difficult to craft learning conditions that accentuated the desired values. I noticed that while students are often aware of these values, they did not practice them (Interview 1, September 26, 2009). Moreover, I found that assessment in this area was difficult because the teacher had little influence over the root of student behavior. Finally, I recognized that because student values were so diverse attempts to teach and assess the affective domain became very difficult. As a result, the affective learning continued to be a challenge for me throughout the study (Interview 1, September 26, 2009).

As for success in PE, I defined it in several ways. First, student success meant engagement by all students. Second, I stated that to be successful students need to not just be physically playing, but at some point need to be thinking and reflecting on what they

are doing in order to learn from their play experiences. Teachers have to include a time and teach strategies that help students think critically about what they did and solve problems that they faced during play (Interview 1, September 26, 2009). Third, I thought it was important for teachers and students to be cognizant of the importance of social relations in physical activity and be involved in strategies that enhance classroom relations. I even suggested in my field journals that the affective domain might be the most important quality of a successful PE student because it will have the greatest impact on whether they are able to relate with others well enough to participate successfully when they are on their own (Interview 1, September 26, 2009). Finally, I stated that defining success had to include fun and fulfillment because this was what kept students wanting to play (Interview 1, September 26, 2009).

I described my assessment practices as having several components: a five point scale to measure aspects of student engagement, various unit specific assessments to measure skill and tactical development, and cognitive assessments that involved reflecting on and writing about various aspects of the game (Interview 1, September 26, 2009).

In my assessment practice, I tried to ensure that criteria for success was provided to students and that sufficient time was given for the learning process to evolve (Interview 1, September 26, 2009). In addition, in my pre-study interview I stated that it was important to have set learning outcomes and that all students were aware of these outcomes (Interview 1, September 26, 2009).

In attempting to enhance student centered learning and student reflection, I also began to experiment with peer assessment. Early attempts proved to be cumbersome and not effective, but I noted that developing the skills and attitudes necessary to become reflective learners was a process that took time to develop (Interview 1, September 26, 2009). As such, I continued to try different methods and wrote about my efforts to refine the process in my field journal.

At the time of the study, my understanding of learning was changing rapidly as I began to understand and incorporate the TGfU model. At this time, I was also challenged by my supervisor to delve deeper into how I understood learning and what rich learning looked like in PE. As a result, my pre-study TPI scores indicated a strong adherence to the developmental perspective (41) (indicative of the emphasis on understanding in TGfU) and high scores in the nurturing perspective (37) and apprenticeship (35). However, while my transmission perspective yielded a lower relative score, my transmission action sub score was high at 12 while my beliefs and intent were lower at 9 each. This reading might have indicated that while I was thinking of different perspectives pertaining to my teaching, my practice still adhered to the transmission perspective. Nonetheless, my thoughts pertaining to learning at the beginning of the study were changing to reflect a more holistic understanding.

Summarizing Pre Interview Understandings

In seeking to discover what we understood about learning prior to and during the initial stages of the study, it was clear that we shared many common beliefs and practices as a result of their common personal histories and formal education. For example, we all

used a teacher centered style of instruction in which the teacher was the source of information. Similarly, assessment was also done solely by the teacher. Despite two participant's incorporation of the TGfU model, which sought a more student centered approach, teacher centeredness was still prevalent.

In addition, a theme of performance was evident during pre-study interviews and in our writings. Whether we were using the technical model or the TGfU model, improvement to the physical aspects of game performance via teacher instruction was another predominant theme. Despite our agreement in the aim of PE as a process that enables students to learn how to become physically active throughout their lives, and the statements about the importance of the cognitive and affective domains, physical performance was often the main theme throughout much of the study. In other words, while teachers said that life-long engagement in physical activity was the goal of their teaching, they focused their teaching primarily on game performance. Subsequently, other aspects of being active for life were not addressed as much.

Finally, when characterizing successful learning, we all commented on the importance of student engagement in games. For example, Steve stated that he believed in a learning environment that afforded students a sound technical base and opportunities for a high volume of practice. In addition, he thought it was crucial that students felt safe and comfortable when playing. As a result, he hoped that this positive atmosphere of active, stimulated students would translate into an appreciation for an active lifestyle. In fact, I would argue that engagement was the primary belief of these teachers: they wanted their students to make a personal commitment to the importance and significance of

games and sport. This is in fact how they manifest their commitment to healthy living and life-long practices of fitness.

Inception of the TGfU Model and its Influence on Participants Understanding of Learning

The intent of this study was to determine if the inception of the TGfU model would affect the four participant teachers' understanding of learning (their beliefs, their intention or aim when teaching the PE curriculum) and subsequently their practice of teaching. Two of the teachers maintained the typical teaching practices; however they were, through their participation in the study's professional learning community with the TGfU teachers, exposed and contributed to the ideas and changes that emanated from the study experience. As a result, several themes emerged from the participants' journals, final interviews and final TPI results that indicated change; however, each participant changed in a different way. All four participants reported clarifications, realizations, and changes to their understanding of teaching and learning. This data emerged in the form of oral and written testimony during the latter and end stages of the study. Data themes will be presented in the form of changes to teaching practices, intent, and beliefs about learning.

Changes to Steve's Practice, Intent, and Beliefs about Leaning in PE

In his final interview Steve claimed that his teaching practices changed during the study because of his appreciation of the TGfU model. Specifically, his adoption of small sided games enhanced the qualities that he was trying to achieve in his classes: a high level of participation and student enjoyment (Interview 1, December 16, 2009). Steve

found that small sided games allowed more students to engage in the games at their own level of ability and therefore have the opportunity “to demonstrate or be successful” (Interview 1, December 16, 2009). Furthermore, Steve found that small sided games provided a more authentic learning environment than drills, and that students enjoyed the games more, “used their time better, and were more active during that time” (Interview 1, December 16, 2009).

Despite Steve’s adoption of small sided games used in TGfU, he admitted that he had “only hit the tip of the iceberg [in terms of] its benefits and its potential, but I certainly think it’s going to be interesting to develop my course over the next couple of years” (Interview 1, December 16, 2009). During the study, while Steve did not have the opportunity to delve into the details of TGfU, he did begin to experience its potential though experimentation with modified games. For example, in Steve’s volleyball unit students had significant difficulty transferring their passing skills from controlled drills to the full version of the game; however, the two on two games played on a half court was far more successful (Interview 1, December 16, 2009).”

In terms of Steve’s intent (the aim of his instruction), it consistently revolved around two themes: high levels of participation and student enjoyment. In his pre-study and final interview Steve emphasized the importance of students having the opportunity to experience as many repetitions as possible within drills and games for the purpose of developing their skills and confidence (Interview 1, September 22, 2009). Steve hoped that as the student’s skill improved, this would transfer to game play and that game play and result more successful games (Interview 1, September 22, 2009). However, as Steve

began to implement small sided, modified games he found that student engagement improved. As a result, he realized that his intent of having students engage at a high level was better achieved by incorporating the TGfU model (Interview 2, December 16, 2009).

Similarly, Steve's second theme was to make the game fun for students. He thought that student enjoyment would enhance student regard for physical activity: "At the end of the day…did they have a level of fun…did they enjoy it" (Interview 2, December 16, 2009). This theme was central to Steve's idea of the intent of PE because if students did not enjoy the game, they would not be motivated to invest themselves further and this would reduce their motivation towards future physical activities. Again, Steve found that students seemed to have more fun and success when he used modified games in conjunction with drills (Interview 2, December 16, 2009). Steve stated that "when you do some of the basic skills stuff not put around a game, they don't find that it's fun" (Interview 2, December 16, 2009). As a result, Steve found that modified games satisfied his aim of student enjoyment and a high level of participation better than his previous methods of technical development.

Steve's beliefs surrounding learning and teaching in PE also changed throughout the study. While Steve did not fully adopt the TGfU model, his participation in the professional learning community exposed him to the principles and practices of TGfU and thus influenced his beliefs about learning games (Interview 2, December 16, 2009). For example, in his final interview Steve stated that his beliefs about how learning happens in PE had changed from a skill based approach to a more game based approach. This change was precipitated by Steve's observation of his students' enhanced successes

with modified games (specifically those that involved smaller groupings). Steve explained that students had more success with modified, small sided games because they were less complex, enabled higher levels of participation by more students, and provided an opportunity for more skillful students to help lower skilled students (Interview 2, December 16, 2009).

Despite the fact that Steve did not adopt the TGfU model during the study, his exposure to modified games allowed him to recognize the limitations of the technical model. For example, Steve noted that the technical model did not always produce the crucial transfer of skills from drill to game; however, he noted that a game centered approach (like TGfU) might allow students to benefit from playing in a more holistic learning environment and thereby might enjoy more success (Interview 2, December 16, 2009).

Similarly, while most of Steve's realizations centered on psychomotor development he also began to acknowledge how student understanding contributed to their learning of games (Interview 2, December 16, 2009). In his final interview, Steve contemplated his limited use of questioning compared to his tendency to tell students what was important. However, in doing so, he recognized that student centered understanding of game events is a significant contributor to game success (Interview 2, December 16, 2009).

Furthermore, while Steve did not use student self and peer assessment, his participation in the learning community and introduction to questioning enabled him to see the contribution that student centered teaching had on learning (Interview 2,

December 16, 2009). For example, Steve talked about the potential for students with strong athletic experiences to share their knowledge with others (Interview 2, December 16, 2009). Steve found that the smaller groups used on TGfU modified games created "more opportunities to share…knowledge about the…game" (Interview 2, December 16, 2009). While this does not constitute the use of peer assessment as a formative assessment tool, many of the essential qualities are present: student communication, self reflection, observation and evaluation, and social interaction. Consequently, Steve's insights allowed him to see the potential of assessment as a result of his TGfU experience.

Steve's participation in the learning community and exposure to the TGfU model changed his beliefs about learning in PE from being based on a skill based approach to being based on a games based approach. While TGfU introduced new avenues of thought about teaching and learning, it also enhanced his preexisting understanding of learning in games and allowed him to appreciate other values such as understanding of tactics and strategy that he had previously not focused on. This was reflected, in part, in Steve's final TPI scores. While Steve's nurturing score remained high, there was a strong upward shift in his apprenticeship score and a downward shift in his transmission score (see appendix for precise changes). These changes indicate a change from a teacher centered approach to a more student centered learning environment where the teacher is the facilitator. In the end, Steve's experience produced some fundamental changes in beliefs and practice that will continue to shape his teaching of PE.

Changes to James's Practice, Intent, and Beliefs about Leaning in PE

Despite the fact that James did not adopt the TGfU model in the study he brought different insights to the study because of his participation in the International TGfU Conference (Interview 2, December 16, 2009). As a result, he had more background knowledge of the model to draw upon than Steve. Despite this, his teaching practices prior to the study more closely resembled a teacher centered version of the technical model, but during the study he was able to experiment with more modified games using TGfU and subsequently was able to integrate some changes into his practice.

James's participation in the professional learning community enabled him to experiment with aspects of TGfU through modified, small sided games. James had used modified games in past soccer and flag football units, but in others, particularly volleyball, he typically had adhered to the full game version (Interview 2, December 16, 2009). However, James found that many students who were not successful in the full version of volleyball, but when he modified the game he found they were more active in the game (Interview 2, December 16, 2009). For example, during the study James experimented with modified volleyball games and noted that not only could he change the rules of the game to foster understanding and performance, but also the court size and number of players (James, Journal). In this case, James discovered that modifying court size and the number of players was the most effective for achieving his aim of high levels of participation. Despite this observation, James found that students often reverted back to their previous playing patterns when he resumed full sided games. He concluded that this happened because students had not played enough to develop the technical

competence and understanding required to play the full version of the game successfully (James, Journal).

With regards to questioning and self assessment practices, James did not use these techniques extensively within the study. However, events during the study confirmed for James that students "need to take ownership…of their own learning experience" (Interview 2, December 16, 2009). This came about in part because of James's use of modified games and the subsequent realization of how they contributed to the development of student ownership of learning. For example, during his volleyball unit James's use of modified games created "more time on the ball and more opportunities to participate… and put the onus on [the students] to be part of [the game]" (Interview 2, December 16, 2009). As a result, James realized that by simply implementing modified games he was shifting a portion of the responsibility for learning to the students because of the higher quality learning environment he had set up for them. In doing so, James got a sense of how constructivist approach incorporated such pedagogical techniques to enable students to construct their own meaning within games. As a result, James thought TGfU offered more potential for successful learning in terms enabling life-long participation in physical activity (Interview 2, December 16, 2009).

James's intent during PE always revolved around preparing students to be active for life: this meant being able to play the full version of the game successfully (Interview 2, September 22, 2009). James saw "a need to use…[their] skills in a real time environment where they are actually putting them into…games" (Interview 2, December 16, 2009). However, James's participation in the professional learning community

precipitated a change in his thinking of how to achieve this aim. Previously James had almost exclusively used adhered to the technical model, but in his final interview he acknowledged that student centered learning was important in achieving that goal (Interview 2, December 16, 2009). Specifically, he mentioned fostering a learning environment in which students create their own meaning; thus it becomes the teacher's responsibility to create the learning environment that encourages student centered learning (Interview 2, December 16, 2009). In the end, James's intent had not changed; he simply saw a more effective way to achieve it.

Similarly, James's beliefs about learning changed during the course of the study. James maintained his view that learning games in PE is accomplished by playing games and adding to ones prior knowledge. However, in his final interview James said that his understanding of these processes had been enhanced. For example, he explained that his previous adherence to the technical approach prescribed that skills were introduced and practiced and then students were introduced to the game. However, TGfU's use of modified games allowed him to adjust the game to the students' current abilities and level of understanding in an effort to bridge the gap between technical development and tactical understanding (Interview 2, December 16, 2009). James's use of modified games in his volleyball unit (previously explained) exemplified this change. Moreover, these experiences with modified games made James realize that it is very important for students to construct their own learning. For example, he explained that questioning can be used to entice students to figure out why they were being asked to perform a certain way (Interview 2, December 16, 2009). While he did not have a chance to fully integrate

all of the pedagogical methods of TGfU, the integration of modified games, his previous knowledge of TGfU, and participation in the learning community helped him to clarify his beliefs about learning in PE.

During the study James's participation in the professional learning community and previous knowledge of TGfU enabled changes to his practice, intent, and beliefs about learning in PE. However, his TPI scores did not reflect any change. Nonetheless, his interview and journals testify that he had begun to question his reliance on the technical approach and that his use of modified games had created a new appreciation for student centered learning in PE.

Changes to Brad's Practice, Intent, and Beliefs about Leaning in PE

Brad was one of the teachers that incorporated the TGfU model into his games units for the study. This was particularly timely because he had begun his TGfU master's degree the previous summer. As a result, while he talked about many of the same aspects that James and Steve did, his insights understandably contained were more developed (in terms of TGfU) and he was able to systematically implement TGfU and focus on aspects of the learning environment that he knew needed attention. However, as the TGfU model was new to him, its integration still was experimental.

In terms of applying TGfU to his practice, Brad used a full array of modified games and questioning techniques to create a more student centered learning environment that focused not only on technical development, but also on tactical understanding and overall game play. He summarized the results of his TGfU units by stating that students learned the basic tactical essence of the game at a faster rate, and correspondingly were

able to use these tactical skills more consistently (Interview 2, December 14, 2009). Specifically, Brad noted in his journal that students got better at "what to do with the volleyball…[and] a lot more learning took place in sense of positioning" (Brad, Journal).

Later in his final interview he noted that another factor that he believed contributed to this success was the lesson focus. Clearly communicating lesson outcomes related to game play to students seemed to galvanize their understanding of the concepts and allowed them to focus on these aspects during the modified games. In addition, directed questioning also contributed to this focus on game tactics and a more student centered learning environment because students "have more ownership of what they are doing instead of just doing what I tell them they should be doing" (Interview 2, December 14, 2009).

Finally, while Brad did not delve into assessment during the fall semester due to time constraints, he noted that the TGfU model yielded similar results in terms of technical development, but his use of the TGfU model yielded better results in terms of student's ability to play the game (Interview 2, December 14, 2009).

Brad's general understanding of the intent of PE did not change appreciatively throughout the study: he continued to assert that the aim of PE lies in life-long physical activity (Interview 2, December 14, 2009). However, his thinking about the intent of PE changed after the study because he found that a more holistic, game based approach created a learning environment that generated more successful games (Interview 2, December 14, 2009). By focusing on understanding and how to play the game as well as skill development, Brad found that students were more confident in their game play

ability and he therefore suspected that they would be more likely to play that game again (Interview 2, December 16, 2009).

In terms of beliefs about teaching and learning Brad's participation in this collaborative study confirmed much of the change that he had already experienced as part of his master's studies. For example, Brad wrote in his journals and discussed in his final interview that enhancing the understanding portion of learning through a games based approach and the use of questioning yielded a richer learning experience (Interview 2, December 14, 2009). Furthermore, he added that the TGfU approach encouraged his students to "have more ownership of what they are doing instead of just doing what I tell them they should be doing" (Interview 2, December 14, 2009). This was a shift of sorts away from his pre-study interview in that it suggested that the job of the teacher may not simply be to transmit information to students (as in the Direct Teaching Model), but that students may be required to take a larger role in their learning for it to be successful.

Finally, Brad reiterated his beliefs regarding the importance of the learning environment: students need to feel comfortable taking risks, that students have opportunities to learn (facilitated by the teacher), and that this learning be focused on the understanding and application of tactics within games (Interview 2, December 16, 2009). These declarations further support Brad's thinking from a teacher centered learning environment to a student centered one.

Brad's participation in the study allowed him a chance to try the TGfU model and to use the professional learning community to support his efforts. His integration of the model created strengthened Brad's beliefs in the importance of understanding in games.

Ironically, Brad's final TPI scores yielded a reduction in the developmental perspective (which corresponds to the enhancement of student understanding). This may be a result of the significant changes in thinking and beliefs about learning that Brad experienced. Nevertheless, Brad's journals and interview indicated significant changes to his beliefs about student learning in PE.

Changes to My Practice, Intent, and Beliefs about Leaning in PE

I was the second participant in the study that implemented the TGfU model. Like Brad, I had a reasonable grasp of the TGfU model. I had only recently begun to integrate the model into my teaching practice and was still experimenting with various aspects of TGfU when the study occurred.

My practice changed throughout the study as I tried different approaches to implementing TGfU. For example, I used modified games extensively and found that they promoted a higher degree of participation. My students also appeared to be more comfortable playing modified games that appropriately challenged their abilities and understanding of the game (Interview 2, December 17, 2009). Game modifications such as changing the tactical complexity of the game or the technical demand allowed students to play successfully and allowed me to isolate various tactical, and associated technical, aspects in an effort to develop student understanding and ability.

In addition to modified games, I used questioning to elicit conscious thought from students about the concepts that were being taught. Students were asked questions as a class, in small groups, and individually. In addition, students worked together in pairs or small groups to collaborate and solve problems during games and breaks in play (My

Journal). I found that the small group atmosphere was most effective for developing student understanding as it seemed students were less distracted and more willing to take risks when they were answering questions (My Journal). However, I found it challenging to ask pertinent questions because student play and understanding was rarely congruent: students often understood far more than their playing ability revealed. As a result, questions about the previous play often produced little new information because students were already aware of what they should have done. Consequently, I found that determining the appropriate question was difficult (Interview 2, December 17, 2009).

With regards to assessment, I experimented with several peer assessment tools in an effort to enrich the students' learning experience. For example, in my basketball unit I introduced his students to peer assessment techniques that involved deciding whether certain technical or tactical criteria were present during their partner's game. Students recorded their observations on a rubric, added a qualifying comment, and then the performer added a short reflective comment on how they could improve (Interview 2, December 17, 2009). While I found it difficult to determine the effectiveness of the peer assessments, I also spent inordinate amount of time training students, reviewing the process, and having students carry out the task (Interview 2, December 17, 2009). In the end I determined that a simpler, more progressive integration of peer assessment techniques would be more appropriate.

My understanding of the intent of PE did not change during the study so much as it deepened. Like the other participants, I defined the intent of PE as teaching students what they needed to be active for life, but during my initial interview we (myself and the

other three participants) did not elaborate on what this entailed. However, in my final interview, I explained that while a strong PE program would allow students to develop their physical abilities and understanding of games, perhaps the most important aspect for students to gain was the intrinsic motivation and social skills necessary to interact with others during physical activity (Interview 2, December 17, 2009). I thought it would be these meta-cognitive and affective abilities that would be an important factor in determining if students exercised as adults and that this development might have fewer opportunities to develop within a teacher centered learning environment.

Similarly, my beliefs about learning did not change so much as they were enhanced and clarified. In my pre-study interview and journals I described learning in PE as experiential and that students must somehow come to understand what they are doing through deliberate moments of reflection and thought. Within games meta-cognition occurs when students engage in critical analysis, evaluation, and decision making about the game (Hopper, 2002). This process is cyclical: students are exposed to game experience, reflect on their experience, receive feedback and direction from others, and return to the game with a different mindset (although their realizations may not be immediate) (Hooper, 2002). My experiences during the study with TGfU implementation allowed me to see aspects of this theory in action and how the different teaching models related to one another. Moreover, it became clearer how students participate in, understand, and are motivated by their PE learning environment.

Finally, I also gained more insight into my role of teacher and how I contributed to the learning process. Clarifying the aim of the PE teacher allowed me to see how I was

actually inhibiting learning for students and how to rectify this problem. A shift from teacher centeredness to student centered learning would free students to learn the affective skills they needed to not only be active people, but to become active independent of a teacher or establishment.

My participation in the study allowed me to experience the TGfU model and see the potential of modified games, questioning, and a focus on student centered learning. However, I also realized that regardless of the model of instruction that is used, student engagement is critical for learning and that there are many reasons why students do not engage in PE. Nonetheless, for me the creation of a student centered learning environment through the implementation of the TGfU model was more successful than my previous practice. However, my final TPI did not indicate these results. Instead all of my readings dropped substantially. This may be explained by the significant changes in thinking and new information that I had to process during the study. Still, my experiences allowed me to clarify my understanding of how students learn and to develop my ideas on how to maximize learning in my classes.

The preceding four case studies have outlined how four participant teachers, working in a community of practice, used the TGfU teaching model to change their practice. While two participants were designated to use the model and deepen their understanding of learning, the other two participants maintained their typical practice. However, change occurred for all participants, particularly Steve who had the least amount of previous exposure to the model. All four participants recognized and, to some degree, implemented various aspects of the model and found that levels of student

engagement rose as a result. This was interpreted by the participants as a contributing factor to creating a more student centered learning environment. Furthermore, the participants also experienced (in different ways) better cognitive and affective learning conditions in their classes. The changes that occurred as a result of implementing TGfU that precipitated changes in participant beliefs about how learning occurs in PE.

CHAPTER 5: CONFESSIONAL INSIGHTS

Discussion and Reflections

In discussing the results of this study, a type of 'confessional tale' will be used in conjunction with a 'realist tale' to relay my insights. As Sparkes (2002) explains, while the realist account seeks to pass on the author's analysis with "an almost complete absence of the author, [the confessional tale] foregrounds the voice and concerns of the author in a way that takes us behind the scenes" (p. 41, 57). In doing so, I hope that the findings of my study will resonate with other physical educators and possibly be used by them as they experience their own learning for improvement. The confessional aspects will be embedded within the realist sections of this chapter in an effort to accentuate the analysis that is occurring. This chapter will begin with a confessional section that explains further my dissatisfaction with teaching PE which became the impetus for this study.

This study grew out of my dissatisfaction with the learning that was happening in my physical education classes. After 10 years of teaching, I had resolved that my students, despite my best efforts, were not really learning what I was trying to teach and that something needed to change. Initially, graduating from the University of Victoria, I believed that what I was doing was an accepted and effective method: it was certainly consistent with how I was taught PE and I, and everyone I knew, did fine.

However, as I gained experience as a teacher, I observed repeatedly that students in PE classes rarely improved and concluded that something was hampering their learning. While athletic students continued to perform well, they too rarely seemed to learn appreciably during my lessons. Similarly, students with low athletic ability were often turned off by their repeated failures, and students with modest abilities actually seemed to learn the most, but even this was not meeting my expectations. This

phenomenon was summed up in frequent teacher conversations with colleagues about various students or classes in which we commented on the level of athletic ability as if this quality was a pre-requisite for learning and would therefore determine the students' chances for success. It also spoke to the marginalization of physical education that I perceived within the education profession and general population. This bothered me because it meant that my job was more of a recreation facilitators than a teacher because student success was already largely pre-determined by their athletic ability.

Moreover, my approach (and that of my colleagues) largely ignored vast aspects of learning within the PE curriculum. For example, our focus on ability was accompanied by courses heavily dominated by competitive games. Furthermore, whereas cognitive and affective aspects were recognized and discussed with students, (but rarely taught explicitly) performance was the focus. While I was convinced of the importance of learning through physical activity, my dissatisfaction led me to ask myself: What am I doing here? What am I teaching? What are my students learning?

As a result, I entered graduate school in an attempt to find answers to my questions about how to facilitate effective student learning. Later on, my thesis supervisor began to ask me questions such as: "How does learning occur in PE? Why do we teach games? What does success look like in games classes? What does rich learning look like?" These questions led me to question my philosophy of learning. As I pondered these questions my research began to reveal gaps in how I understood learning, assumptions that I was relying on, and other models of teaching that sought to address these very issues.

Context of the Study

This study sought to use the TGfU model as a stimulus for teacher change. Specifically, to what extent do teachers understand how the way they teach and assess affects student learning and to what extent does the implementation of the TGfU model influence this understanding? Working within a professional learning community, three colleagues and I collaborated in an effort to better understand how the integration of the

TGfU model would affect our understanding of learning and practice. The results of this practitioner action research indicated that while tangible change did occur in the participants' teaching practices and understanding of the aim of PE, changing teachers' belief about how learning occurs was more difficult: less significant change occurred in this area. The result of this study will be presented in several themes including sources of teacher pedagogical content knowledge and the difficulty of change; affects of adopting the TGfU model on beliefs about learning, beliefs about the aim of PE; teachers' assessment practices; and the development of our professional learning community.

Sources of Teacher Pedagogical Content Knowledge

In this study, my colleagues and I had many similar qualities: we were all male, all enjoyed physical activity and PE, were all relatively successful competitive team game players throughout our adolescence and early adulthood, and were all graduates of the University of Victoria's School of Physical Education. Moreover, since we all graduated within a 10 year period, our respective teacher education programs would also have had many similar qualities. For example, we learned about different teaching philosophies such as Mosston's Spectrum of Teaching Styles (Mosston & Ashworth, 2002). Moreover, our undergraduate teacher education and personal learning experiences in high school were dominated by the direct model of instruction (the prevailing model/approach used to deliver PE) and focused almost exclusively on skill proficiency (Metzler, 2005b). As a result, our past experiences with learning in physical education, particularly our experiences as students and athletes, had a profound influence on the way we learned to teach and how we understand learning (Munby, Russell, & Martin, 2001).

Throughout the study the participants frequently commented on a variety of desired learning outcomes; however, in their discussions dealing with instruction, they typically focused on improving game performance. For example, in his initial interview, James described student success in a games class as "seeing [the] skill executed the way it was intended" (Interview 1, September 22, 2009). Similarly, Brad stated that the most significant ideas surrounding TGfU were "learning how to play the game a bit better" (Interview 2, December 14, 2009). These comments are indicative of James and Brad's intent to teach students to play better; therefore, placing performance as the primary focus of instruction.

While my colleagues and I initially talked about the other domains of learning such as creating safe, comfortable learning environments and ensuring student enjoyment, our teaching methods were often focused on the physical. However, later in the study, we began to discuss the cognitive aspects of developing game play. As a result, while we expanded our practice to consider the cognitive domain, we continued to use a teacher centered approach that focused on skill and tactical development believing that this would enhance game play and give students the confidence to play games throughout their lives.

This example exemplified the complexity of the teacher change process because it demonstrated the difficulty of overcoming deeply engrained beliefs about learning that develop throughout a teacher's life. As Butler (2005) explains, changing these beliefs about learning often requires an "understanding that their role needs to change to accommodate the changed focus of learning" (p. 228).

As my discontent grew, I began looking at things I could change. Initially, I thought I was simply not working hard enough at my planning and practice. However, I soon realized that my deviation from the type of teaching and assessment that I was initially taught was not because I was inattentive, but because I knew it was not effective. Enrolling in the graduate school and attending the 4th International TGfU Conference exposed me to what educators and education researchers are doing with regards to PE learning. For example, I was exposed to ideas about how people can use games as a medium for learning. This made me consider my understanding of how people learn and the complexity of the learning environment. However, while these endeavors have proven their worth, the effort to re-ignite and sustain my learning has been formidable.

Teacher ability to reflect upon and change their practice is difficult because it requires teacher to objectively reflect upon what they are doing, actively seek out alternative practices, and spend time implementing them (Patton & Griffin, 2008). While this theoretical process seems straightforward, the previous example of change indicates that change to teacher beliefs is complex, requires time to evolve, and is not a smooth, linear process. Rather, change to teacher's beliefs about learning happens as a result of new experiences, but the nature of the changes depends on the teacher's personal experience and how they integrate the new knowledge. As Patton and Griffin (2008) conclude, "changing beliefs and practices is often reported as interactive or synergistic…[and] for lasting change to occur, both beliefs and practices must change and often changes in one level reveal contradictions in the other—serving as the impetus for change" (p. 288). This was evident in the study when Brad commented about his inability to plan for and implement changes to his assessment practices due to a lack of time (Interview 2, December 14, 2009). He could not handle this aspect of the study simply because he did not have the time. Similarly, in the previous example of James's

and Brad's comments on student success and the significant aspects of TGfU, both focused on game improvement, but Brad's experiences led him to consider the cognitive aspects of the game, while James's comments indicated he was focusing on the physical aspects. This difference in perspective demonstrates how teachers learn differently in similar situations and is indicative of the complexity of teacher change.

In addition, the complex process of teacher change requires effort to initiate and sustain. Moreover, teachers must have a reason to embark upon change which can be easily avoided by blaming students and accepting the status quo (McCaughtry, & Rovegno, 2003). This study showed that while meaningful change is difficult and time consuming, teacher collaboration and the infusion of new thinking that flowed from trying a different teaching model is possible. However, the process is one of experimentation in which new ideas were adapted and applied with both success and failure. For example, despite my success in implementing modified games, my attempts to use peer assessments were "time consuming [and did not] account for student variability" (My journal).

However, through an iterative process of teacher change we were able to advance our understanding through group collaboration. This produced new learning that continually built on previous experiences. For example, as I continued to reflect on peer assessment, I raised the topic at our next professional learning community meeting. While my colleagues had not been as focused on assessment, the ideas generated from the discussion helped to advance and confirm aspects of my thinking such as ensuring that the peer assessment process was simple for students to carry out (Professional

learning community meeting 2, November 13th). As a result, my next use of peer assessment (post study) was more successful in terms of being easier for students to use.

Affects of Adopting TGfU on the Aim, Practice, and Beliefs about PE

As a result of our participation in a professional learning community of practice and exposure to, or adoption of, the TGfU model, we experienced varying degrees of change in our understanding of the aim of PE, their teaching practices, and our beliefs about learning. Often, my colleagues explained that it was not so much a change in thinking that they experienced, but a realization, clarification, or expansion of their existing beliefs that occurred. This deepening of understanding happened as Brad and I actively employed the TGfU model in our classes, but because of our collaboration, all four of us were influenced by the model and experienced change.

Changes in Participants' Understanding of the Aim of PE

Initially, we all described the aim of PE in terms of teaching students what they require to be active throughout their lives. However, we also qualified our statements with comments about enjoyment, learning necessary physical, cognitive, and social skills and attitudes, and ensuring that students were kept active. For example, Brad thought that "providing students with knowledge and some skills" was an important aspect of the aim of PE (Interview 1, September 24, 2009). In contrast, Steve thought part of the aim was "to keep kids active and busy and try to keep them stimulated" (Interview 1, September 22, 2009). As the study evolved, our understanding of the aim of PE deepened and each of us honed our definitions as a result of our experiences with the TGfU model. For instance Steve, who had no previous knowledge of the TGfU model, continued to

emphasize that “PE is about [trying] to make … an enjoyable learning environment” (Interview 1, September 22, 2009). However, later he added that using a different model to impart the strategies and tactics of a game in addition to skills might enhance the enjoyment by creating “more interactive and less static…opportunities” (Interview II, December 16, 2009). He concluded by clarifying that by using a different model student satisfaction and learning potential might be “enhanced” (Interview 2, December 16, 2009). Consequently, Steve’s brief experience with the TGfU model provoked change to his understanding of how to achieve his aim.

While Steve was influenced by the overall structural potential of the model, other participants realized the importance of student centered learning. In our final interviews, James and I explained that teachers can impart knowledge and organize activities, but unless our students are also eventually taught to assume responsibility of these processes themselves, they may be less likely to maintain an active lifestyle outside of school. Moreover, student centered learning environments do not simply impart how to organize and manage physical activities; they also include teaching students how learning occurs. As I discussed in my final interview, meta-cognition (thinking about thinking) in PE is facilitated when teachers create a learning environment “that gradually allows the learner to understand, practice, and refine the processes that constitute learning” (personal Interview 2, December 17, 2009). The type of learning environment that James and I were alluding to is somewhat consistent with the learning theories that support the TGfU model. For students to learn, they must have opportunities for increasing involvement in and control of the learning environment. These opportunities should include not only

participation in the games, but in all the processes that facilitate the games' existence. In doing so, students are exposed to making decisions and solving problems (cognitivist learning theory) within authentic situations (Kirk & MacPhail, 2002). Consequently, how teachers craft the learning environment to enable students to expand previous knowledge and skill within an authentic, developmentally appropriate activity is a mainstay of constructivist learning theory and central to establishing a student centered learning environment (Kirk & MacDonald, 1998). While James and my experiences did not evolve to produce more conclusive results pertaining to how learning theory applies to the application of TGfU, they did concur with Rink (2001) in that we recognized "the need for high levels of learner involvement with the content" (p. 115). For example, James discussed a "movement towards trying to get them to figure out how they're going to learn" in his final interview (December 14, 2009). Similarly, I stated that one of the most important conclusions from the study for me was the idea that "students do the learning. Teachers craft the environment that allows for optimal learning" (personal Interview 2, December 17, 2009).

Furthermore, Brad and I found that implementing the TGfU model highlighted how cognitive engagement contributed to the aim of PE. Specifically, Brad used developmentally appropriate games infused with timely questioning to facilitate understanding of the desired tactical and technical outcomes. For example, in his lacrosse unit Brad used "a basic pass and catch game…with emphasis on spacing, off the ball movement and defensive coverage…stopped 2-3 time for questioning…[and found] a noticeable improvement in student positioning" (Brad, journal). As a result, he found that

his students discussed important game aspects more often and asked more questions (critical thinking) about how to play the game. In doing so, Brad created a process that not only taught students the desired skills and tactics, but also an effective process of how to learn during game-play. That is, by manipulating the game and using pertinent questions, Brad created what Chow et al. (2007) describes as a learning environment in which "interactions between learner cognition, perception, and actions [combined] to teach tactical knowledge and skills related to specific tactical concepts" (p. 254).

Finally, during the latter part of the study, I expanded on our inquiry into the aim of PE as I began to think about the affective aspects of PE. My thesis supervisor sparked these thoughts when our learning community's dialogue seemed to stall. In essence, we had experienced and come to appreciate a sampling of the psychomotor and cognitive applications of TGfU, but we had yet to delve into the realm of affective development despite often mentioning its importance. However, as explained by Butler (2006) we agreed that focusing on the affective domain is crucial to achieving the aim of PE because of its role in developing students' social and cognitive abilities which are necessary for constructing an inherent appreciation for physical activity and an active lifestyle. I wrote about avenues for this affective development in my journal considering peer assessment and peer coaching (My journal). I found that both of these constructs had the potential to help students to appreciate and foster their abilities to think beyond themselves (My journal). In doing so, opportunities existed for students to help others by assessing their peers and to benefit themselves from being involved in this iterative

process of evaluation. However, this line of thinking did not ignite conversation in the forum or during meetings and therefore did not become a topic of discussion.

Conducting a study that attempts to invoke teacher change was challenging. Initially, I thought my colleagues would be quite enthusiastic to participate because they seemed interested in TGfU and in some cases had already invested time going to conferences and initiating graduate work. However, while my colleagues did devote considerable time to the study, there were aspects that were not accepted by them. One aspect was the forum. I initiated the forum with a few questions about topics I wanted to discuss and some conversation followed; however, this quickly faded and I was soon left as the sole contributor. I continued to post my thoughts and experiences throughout the study, but received no response. Time was cited as the reason why people did not participate in the forum. Ironically, I initially believed that the forum was a time saver and suggested it in favor of meetings. Indeed, James had mentioned that he found the forum difficult to access because he had to go to the google website every time he wanted to contribute to a discussion.

During the mid-point of the study I decided to initiate face-to-face meetings to satisfy the collaborative needs of our partnership. While I initially believed that these meetings had not yielded the volume of discussion I had hoped, my analysis of the minutes revealed discussions that were rich in emerging ideas about learning. While I had originally intended to enter each meeting with a list of topics that I thought were pertinent and would focus our discussion, talk always seemed to diverge from my agenda. In hind sight, these meetings ended up becoming a far more collaborative effort than my tendencies would have initially favored. By allowing the meeting's agenda to be dictated by all the participants instead of simply myself, a more authentic professional learning community developed. For example, during the last meeting I wanted to address how to instruct and assess affective learning, but our conversation kept coming back to conditions that create successful learning environments. It was not until much later that my frustration with not addressing the topic of affective instruction was misguided. We had addressed the topic in the sense that affective development is a product of quality

learning environments. As a result, I have become determined to listen more closely to what is being said to ensure I can be a more open to my peers' agendas and therefore constructive colleague.

While the meeting discussion did not focus on the affective domain it did occur at the end of the study and the topic arose on the forum a month earlier. However, because the forum was not successful in attracting participant dialogue, the topic of affective participation largely eluded the scope of the study. As a result, while we were able to enrich our understanding of how the physical and cognitive domains of learning contribute to the aim of PE, how the affective domain can be fostered remained a challenge not addressed.

Changes to Our Practice

In addition to influencing our beliefs about the aim of PE, various changes to our practice also occurred as result of the inception of TGfU. While we each had different experiences and learned in different ways, the adoption of the TGfU model led to personal realizations regarding how to enhance participation, how to enhance learning of skills and tactics, and thereby how to help students become active throughout their lives.

Steve began his involvement in the study believing that in order for students to become better games players, they needed to improve their technical skills. As a result, his lessons focused on skill based drills and full version games. This typical practice was based on the technical model of instruction that theorized if skills could be isolated and improved it would transfer to enhanced game play (Metzler, 2005b). However, during the study, armed with some knowledge of constructivist learning theory, Steve was exposed to and began to adopt some of the pedagogical practices of TGfU. Specifically, he

expanded his use of modified games within some of his units and attempted to use questioning techniques to increase student understanding.

During the modified games, Steve found that his students "participated more,…had more opportunity for success,… [and] seemed to have more fun" (Interview 2, December 16, 2009). In terms of participation, Steve commented in his journal that his incorporation of game modifications came about in part because he saw that his best efforts at teaching volleyball skills were not resulting in better game play. When games were modified student participation increased and "standing around decreased" (Steve, Journal).

Moreover, Steve perceived that modified games also benefitted some students by reducing the stress of feeling they had to play and perform to certain preconceived levels. Smaller groups allowed the creation of a learning environment that was "more tolerant and accepting of others and their varying abilities" (Steve, journal). As a result, students were able to focus on their personal development and did not have to worry about how they compared to the group or to an imposed standard.

While further attempts by Steve to introduce volleyball spiking and nuances of effective footwork met with less success, modified two versus two games (played on a half court) were successful in increasing participation levels, student enjoyment, and improving overall game play (Interview 2, December 16, 2009). This change led Steve to believe that a different model, such as TGfU, might be more effective in achieving his aim in PE. However, Steve also explained in his journal that students were not always

enthusiastic about playing modified games, and despite their heightened success, still wanted to play the full game of volleyball during the last days of the unit (Steve, journal).

In addition, Steve made some attempts to incorporate questioning techniques into his lessons to increase student understanding of the content. Smaller, modified games facilitated this because it was easier to discuss aspects of the game with students when they were in smaller groups. However, by the end of the study, Steve found that he still needed to work on questioning because he found it difficult to avoid "telling students what he thought they should do" instead of using the questioning technique to evoke thinking (Interview 2, December 16, 2009). This was a common tendency for all of us because of our past experiences of simply being told what to do by our coaches and teachers (Professional learning community, meeting 2).

Despite the fact that Steve's changes to practice included only a sample of the TGfU model, he was able to see how modified games and questioning worked to enhance learning. In doing so, Steve's adoption of certain TGfU practices made him question his central beliefs about how students learn in PE.

Like Steve, James began the study using his usual teaching practices; however, because James had had more exposure to the TGfU model (through his participation in the 4th Annual TGfU Conference), he was more able to begin adopting TGfU principles during the study. While James too initially focused his teaching on the technical aspects of games, he quickly began expanding his experimentation with TGfU in his classes.

Specifically, James noticed that incorporating modified games increased student participation because certain students were no longer able to choose whether they would

engage in the game. By modifying the number of players and the size of the playing space, the game held more students accountable for their level of engagement. Fewer players meant more opportunities to play because there were fewer teammates to rely on (Interview 2, December 16, 2009).

Moreover, James's experience with modifying games showed him that it was not as simple as randomly simplifying rules. The game modifications should affect the game so that it corresponds to student ability levels, highlight a desired tactical feature, and maintain the tactical nature of the game. For example, in his volleyball unit James began by removing almost all the rules and had the students focus solely on getting the ball over the net any way. While the students enjoyed the game, it did not promote and of the tactical applications of skill, such as moving to the ball before passing, that he wanted the students to learn. However, later when he reduced the number of players (negating the decision of whether or not to engage and increasing the number of contacts per player) and decreased the court size (giving players less space to cover and therefore facilitating positional play), he found that the games were more successful (Interview 2, December 16, 2009). In addition to focusing on enabling the number of ball contacts and positioning, these constraints helped students play together because smaller teams made it easier to plan and communicate before and during play. These results are consistent with the constraints led approach described by Chow et al. (2007). James's experience taught him that applying certain constraints to games ease the technical and tactical demands, increase opportunities to engage, and thereby facilitate student understanding and

performance. In the case of volleyball, the imposed constraints made it easier for students to pass the ball successfully and to work together (Interview 2, December 16, 2009).

Despite James's lack of formal training with the TGfU model, his change in practice helped him realize how modifying games can create more effective learning environments for students by increasing participation and adapting the game to student ability levels.

Brad's experience with TGfU was different in that he had begun his master's degree during the previous summer and had attended several courses devoted to the practice of the TGfU model. As a result, he was more prepared for change, and during the study incorporated TGfU into most of his classes. Brad used modified games and questioning to deliver focused lessons centered on developing students' understanding of the game and their playing skills. While Brad had similar results to Steve and James in terms of increased participation, because of his recent study, he was able to integrate a more complete version of the model. For example, in his volleyball unit, Brad found that "students learned to use three contacts at a quicker rate" (Interview 2, December 14, 2009). Brad attributed this success to lesson focus, the use of questioning and specific feedback, and carefully modified games. He explained that the design of his modified games enabled students to spend more time, and receive more feedback, on the tactical aspects that he was teaching (Interview 2, December 14, 2009).

First, Brad noted that he was more effective with his questioning and feedback because the nature of the modified games (i.e. smaller teams and a smaller playing space) enabled more focus to be placed on student learning and "how to play the game instead of

how to pass the ball" (Interview 2, December 14, 2009). Consequently, the model enabled both the students and the teacher to concentrate on a few desired tactical aspects. These comments highlight the role of the teacher within the learning environment. By proscribing games with a tactical focus, it was easier to generate pertinent questions that focused student thinking on the tactical objectives of the game. As a result, careful planning and thoughtful application of the TGfU model allowed Brad to focus his lessons and thereby facilitate potentially deeper learning for students.

Second, Brad's use of questioning not only facilitated student understanding of tactical concepts, it proved to him that understanding the game and fostering a more student centered learning environment was more important than developing an extensive repertoire of skills. By understanding how the game is played, a student can then "participate anytime [in suitable match] and feel confident that they can contribute", thereby qualifying them for the myriad of physical, social, and cognitive benefits that games offer (Interview 2, December 14, 2009). For example, Brad stated that attempting to develop higher levels of understanding "gets them to think a bit more and have ownership of what they are doing instead of just doing what [the teacher] tells them" (Interview 2, December 14, 2009). This example suggests that by adopting a more student centered approach the student will also be using and developing their cognitive abilities and their affective qualities. These observations are consistent with the constructivist approach to learning (Light, 2008).

Third, in keeping with the TGfU model, skills were introduced and practiced only after the modified games revealed a need. For example, Brad reported in his journal that

during his badminton unit, while students grasped the concept of using the clear to create court space, their technical ability to use the clear lagged behind (Interview 2, December 14, 2009). Practice drills and games were then introduced to increase their ability to use the clear. As a result, students improved their tactical application (Brad, journal). This example demonstrates how the game can be used to create context and rationale for students to practice the requisite skills.

However, Brad also added "a lot of time needs to be given in TGfU for the concept to be observed" (Brad, journal). Therefore, the traditional multi-activity model that is common in many secondary PE programs may not be optimal for learning because it does not allow enough time for significant learning to emerge. As a result of this observation, Brad and I have since begun to think about how we can change the length of our instructional units to increase learning.

While Brad saw the most improvement in game understanding and learning how to play the game, he also noted that gender and previous student ability made a difference in how the TGfU lessons were received. For example, he noted that girls "tend to grasp the tactical concepts quicker than males" (Brad, journal). This observation was also supported during our second meeting when Steve observed that girls seem to take more time to plan what they are going to do and are more cognitively engaged, whereas boys often just want to play and need assistance organizing themselves (Professional learning community meeting 2, November 13th). However, it was also noted that when groups include both genders, boys seem to cooperate and organize themselves more effectively.

These insights add further weight to the importance of a student centered learning environment and demand that gender be considered when planning for learning.

Finally, Brad stated that students with "low to average skill levels showed the greatest improvements" in skill and tactical execution, while students of "higher skill levels often seemed bored and not challenged" (Interview 2, December 14, 2009). Ability groups seemed to improve this dichotomy as it allowed Brad to have different groups of students playing at different levels with peers of similar abilities (Interview 2, December 14, 2009). While this organization does not address the importance of playing with people of diverse abilities (an important part of lifelong activity), it does address the issue of student challenge that Rink (1998) recommends when grouping students for performance.

Brad's adoptions of the TGfU model allowed him to see different types of learning emerge from his students. Most notably, he noticed a greater understanding of the games and enhanced social interaction as students took more ownership of their learning. However, the disparity in learning between boys and girls and among students of varying ability groups also emphasized that effective learning cannot simply rely on the adoption of a pedagogical model such as TGfU. As Rink (2001) suggests, "it is important to understand the nature of student processing and engagement and not merely the products of the process in order to understand how to effectively use teaching [methodologies]" (p. 117).

Similarly, I integrated the TGfU model and subsequently observed the results of how constructivist learning theory was manifested in my practice. While I was in a

different master's program than Brad, I too participated in the TGfU summer institute courses at UBC and was trained in the basic application of TGfU. As a result, I was able to effectively incorporate modified games and questioning. I experienced some successes in applying TGfU to my lessons, but this was tempered by challenges with student behavior, motivation, and experimentation with the model.

During the study I used the TGfU model to teach the games units to a grade 9 class. Modified games were used to highlight the tactical concepts of games and to enable students to improve their performance and understanding though the experience of play. I found that modified games involving fewer players, suitable playing implements, and alterations to the playing space all promoted higher levels of participation and facilitated further customization of games based on each group's ability level (My journal).

Modifying the game not only promoted higher levels of participation, it allowed me to highlight certain tactical features. These game modifications, or liberating constraints, are what Chow et al. (2007) claim enable players "to acquire tactical skills by playing modified versions of a target game" (p. 119). Therefore, by introducing constraints to a game, the teacher is limiting the number of decisions and skills required to play, giving players more (or less) time to perform, controlling the amount of space given to play, and thereby limiting the amount of exertion and ability required to succeed. In doing so, the teacher is facilitating success and understanding of how to succeed. For example, in my volleyball unit we began with two versus two games played on a half court. By limiting the number of players I was reducing the number of decisions that had to be made during each rally because there were fewer players to receive the serve, pass

to the setter, set the ball, and attack the other team. Similarly, the reduced court size facilitated movement to the ball because the students did not have to travel as far. This also helped with their passing attempts because it was easier for them to get into a good passing position. By constraining aspects of the game, students were still learning the basic tactics of volleyball, but I was able to modulate the requirements for success to suit their ability levels.

In addition, I found that if the games were designed well, students often enjoyed them more because they had more success (My journal). As Earl (2003) states, success is one of the factors that influences motivation (p.35). Therefore success is an integral consideration for teachers whose goal is to promote lifelong activity.

Furthermore, I also found that smaller playing groups and other game constraints also improved student communication and cohesion. For example, later on in the volleyball unit teams only scored if they are able to use three contacts to return the ball; therefore, players had to discuss the coordination of their play to be successful (My journal). As a result, the game provided student centered learning opportunities that enhanced affective as well as psychomotor abilities.

However, throughout the study I also found that student success was not guaranteed simply by effective delivery of the teaching model. Success also was affected by the level of student engagement in the modified games: students that were highly engaged improved their play and understanding more that those that demonstrated lower levels of engagement (My journal). This observation is supported by Rink (2001) when she states “there is no learning theory that does not recognize the critical nature of the

level of student engagement" (p. 115). As a result, I found that students who demonstrated "apathetic tendencies" or whose behavior inhibited their ability to engage in the learning activities were not as successful (My journal).

In recognizing this challenge, I found that it was important to quickly gain a sense of student abilities and understanding of the game. This knowledge could then be used to design games requiring tactics and skills based specifically on the students' learning needs. Furthermore, I noted the importance of being ready to change games quickly if they were not achieving their goal or when students were ready to move on (My journal). This need to carefully plan, yet have flexibility to change the learning environment made me realize the importance of deeply understanding the content (games) and the model of instruction used (pedagogical content knowledge).

Despite my success in using modified games with junior students, I found that some senior students' notion of the adult games was often ahead of their abilities. As a result, these students were sometimes reluctant to engage in modified games because they did not perceive them as fun (My journal). I presumed that while the modified game might have been appropriate in terms of developing the student's skills and understanding, their perception was that the game was too simple and boring. For example, during a volleyball unit, students often ignored instructions to implement game modifications or quickly reverted away from game modifications and just wanted to play the full version of the game. Despite their abilities being no more advanced than younger students, their resistance to modified games was much stronger.

Finally, I used questioning to help students consciously think about what they had learned. I believed that if students had to answer questions pertaining to certain aspects of play, they would remember and possibly reflect upon them. As Earl (2003) states, "learning begins with some level of consciousness when someone focuses attention on it or because something about it commands attention" (p. 32). In games classes, the teacher designs the game to focus attention on a certain tactical aspect. Questioning further allows students to reflect upon what happened in the game and thereby facilitates integrating the experience and new knowledge with what the student already knows (Earl, 2003). For example, when attempting to establish student understanding of the basic tactics of volleyball, I would observe students play and then ask a question that pertained to their performance and the "shape" of their play (My journal).

When I was 13 years old I joined a karate class because I had heard that Richard Brodeur, the great Vancouver Canucks goaltender, had taken up martial arts to improve his balance. Now, 25 years later, I still do martial arts. One of the reasons I have endured this long is because I have always believed that the eastern martial arts contain powerful knowledge that is obtained by constant study. However, I also have come to realize that my teachers did not have all the answers to my questions and that I would have to search for them myself. So, to further my knowledge, I read every book I could get, attended seminars, visited different teachers, and continued to practice. As the years went by I gradually gathered knowledge, integrated this with my current understanding, and of course, continued to practice. I found that as I continued to practice and study I would return to certain texts or discussions I had had with teachers and understand their words in a different way. Looking back now, I realize I was learning. It took a lot of time because I did not have a Sensei (literally a person who has gone before), who was thinking the same way as I was, to guide me, but I was able to find a way, however inefficiently, to continue my learning. Now, I am able to access teachers in different parts

of the world and ask for instruction. One such teacher shared this quote with me that I believe sums up my experience:

We shall not cease from exploration
And the end of all our exploring
Will be to arrive where we started
And know the place for the first time.

Little Gidding V
Four Quartets
T.S. Eliot (1943)

In this study the participants and I saw our practice change as a result of two participants implementing the TGfU model. James and Steve experienced much different changes because they had not adopted the TGfU model. However, due to our collaboration efforts and their integration of modified games and questioning, they did experience many rich revelations about teaching and learning that changed their practice and may inevitably lead to more teacher change in the future. Similarly, Brad and I, having adopted the model, experienced different insights that created changes to our practice.

Changes in Participants' Beliefs about Learning in PE

At the beginning of the study Steve's beliefs about learning centered on a teacher centered approach. Through direct instruction Steve sought to break down the required skills of the game for students to practice and learn during drills and modified games. The learning environment was characterized by modeling the desired skills, by making

students feel comfortable, and by encouraging a high level of involvement in drills and games (Interview 1, September 22, 2009). Furthermore, “corrective feedback was given” by the teacher to assist student understanding and lessons “often culminated in a game” (Interview 1, September 22, 2009).

In doing so, Steve was using a model in which the teacher is the main source of knowledge and makes all the decisions concerning the learning process, that students have a clear idea of the learning tasks and criteria for success, that correct performance is rewarded with positive, reinforcing feedback, and that students require a high number of trials and feedback to learn (Metzler, 2005b). Moreover, the direct model focuses on the psychomotor domain in an effort to enhance performance; however, as Rink (2001) stresses, students may engage in a high level of cognition during direct instruction despite the focus being on psychomotor performance. Nonetheless, affective dimensions of learning are typically not as high a priority.

While Steve prided himself on doing a good job at breaking down skills into manageable chunks, designing lessons that maximized practice and making students feel comfortable in class, he noticed that while students were often successful in the drills, their success did not transfer to game play. Moreover, he stated that students were often more actively engaged during skill development, but their enthusiasm often waned during game play (Steve, journal).

Conversely, when Steve was able to incorporate some modified games into his volleyball lessons during the study, he found that students had a more successful game experience (Steve, journal). As a result, he began to ponder the merit of learning within a

game centered learning environment. Steve's experience showed him that game centered lessons (TGfU) increased student participation, understanding, and enhanced student interaction and enjoyment that he valued as an important aspect of the aim of PE. As a result, by simply incorporating a part of the TGfU model Steve saw improvements in the learning environment.

Steve described his change in beliefs as an adaptation or enhancement of his prior pedagogical knowledge. This was partially reflected in his TPI scores. Changes to Steve's TPI included a rise in his apprenticeship score, and a fall in his transmission score. In addition, his nurturing score remained relatively high. These changes indicate a lower appreciation of transmission based teaching practices and a higher appreciation of apprenticeship based qualities. Accordingly, while Steve maintained many of his prior beliefs about learning, he noted the benefits of a more situated learning environment and how it enhanced his effort to teach students how to be active for life (Interview 2, December 16, 2009).

Similarly, James described his beliefs about teaching and learning in his initial interview by describing how learning took place during his lessons prior to the study. Typically, his lessons included games and skill developing activities in which students were first given the information necessary to initiate play. Feedback was provided through verbal means and modeling, and criteria was provided so that students had a clear idea of how to achieve success. In addition, having attended the 4th International TGfU conference, James was already using modified games and questioning in his

lessons. Despite these changes, James still relied on the direct model of teaching and focused on technical development (Interview 1, September 22, 2009).

In his post-study interview, James stated that while his understanding of the overall aim of PE had not change, his beliefs about learning did. For example, he explained that his participation in the professional learning community and resulting exposure to the TGfU model enabled him to appreciate the value of cognitive understanding within the learning environment (Interview 2, December 16, 2009). James found that by using questioning techniques to elicit conscious thought and reflection, teachers are enriching the learning environment by allowing students the opportunity to generate their own understanding. Moreover, he declared that while he still tended to "pass on information"; rather than allow students to solve problems, he now clearly recognized the benefits of transferring responsibility for learning to the students (Interview 2, December 16, 2009).

In addition, James believed that students "learned games by playing games" and that the ultimate test of their learning was to demonstrate their skills in a real game (Interview 2, December 16, 2009). Moreover, he stated that prior knowledge was important in learning because it potentially expedited student understanding of game aspects. As a result, James came to value the use of modified games and questioning more because he observed more opportunities for students to play at their own level and to bring their prior knowledge to bear, thereby producing a richer learning environment (Interview 2, December 16, 2009). For example, during James's volleyball unit he recalled that previous grade 9 units were characterized by a lot of standing around, single

person performances, and little overall development of game playing ability. As a result, he now started his volleyball unit with a game in which you can get the ball over the net any way you can. He found that while there was more effort put into the game by many, some kids that had not engaged at all were still not engaging. However, the next day he tried two versus two volleyball played on a half court and more successful games emerged. More students engaged in the games by moving to the ball, communicating, and working together. As James recalled, “they had to help each other and they learned to [give]…their partner time to get to the ball” (James, journal). He had discovered that thoughtful game modifications based on student need increased participation by reducing the complexity of the game to a level that all students could engage in a meaningful way. Moreover, the tactical essence of the game was left intact, thus resulting in the creation of an effective learning environment (Interview 2, December 16, 2009). The parameters of the game now facilitated the use of technical and social skills appropriate for the students’ abilities. For James and his class, and as posited by Hopper, Sanford, and Clarke (2009), the game had become the teacher.

Accordingly, in James’s final interview he stated that in order to achieve the aim of PE the learning experiences “need to be positive and [students have] to take ownership of…their own learning” (James, journal). In his interpretation of learning, James partially articulated the complex interplay of many physical, cognitive, and affective factors required to achieve the outcomes that we desire in PE. Thus, by using a modified game that addressed the students’ developmental needs, James began to understand that the creation of a student centered learning environment was possible by appropriately

manipulating the circumstances of learning. Thus James's use of the TGfU model and resulting change in practice had precipitated a different understanding of how students learn during games.

Brad's beliefs about learning did not change appreciably during the study. Rather, he stated that his first comprehensive use of the TGfU model clarified and confirmed how he could achieve successful learning in games. For Brad, ensuring that students were active and developing their understanding how to play the game had always been his goal. Implementation of the TGfU model showed him a more effective way to achieve these goals, and participation in the professional learning community helped to validate his findings and broaden his perceptions (Interview 2, December 16, 2009).

Brad's experiences confirmed to him that students learned what the teacher taught (Interview 2, December 16, 2009). Therefore, if "you teach them that the skills are most important they'll get better at the skills, but they might not know how to play the game" because they did not have the opportunities to develop their understanding of game play. Similarly, if "you teach them to play the game involving a process they'll learn that as a basis and then you can work on the skills" (Interview 2, December 16, 2009). The implications of Brad's comments are that the learning activities (games) can be used to achieve whatever goals the teacher desires. For example, Brad explained that his TGfU volleyball lessons had allowed students to begin using three contacts much faster than his previous technically based lessons. Moreover, the use of questioning created a more student centered learning environment because students had to individually produce

solutions instead of being given a solution by the teacher. Furthermore, small sided games facilitated social interaction because the limitations on the game enabled student communication (Interview 2, December 16, 2009). As a result, Brad claimed that by crafting appropriate games and using effective questioning students were given the opportunity to participate in a game that was more individualized, made them solve problems, and therefore constituted a richer learning experience.

Finally, Brad commented on the nature of the learning environment in terms of the importance of student comfort. For Brad, implementation of TGfU allowed him to provide a more comfortable learning environment. These values were realized during his TGfU lessons because students had more opportunities to learn within the modified games with peers of like ability; therefore, they tended to take more risks and be less afraid of failing (Interview 2, December 16, 2009). Thus, Brad found that the nature of the learning games and grouping students by ability enabled a higher level of engagement and an associated feeling of comfort for more students.

Brad's experience in implementing TGfU gave his beliefs a direction. He had always believed that ensuring students were active and focusing on understanding how to play the game would lead to effective learning. However, his previous experience using the technical model was not achieving his goals because he had focused solely on technical development and did not consider the affective or cognitive domains. Incorporation of the TGfU model enabled him to realize the importance of the cognitive domain that produced results that were more in line with his beliefs.

Similarly, in my final interview I stated that my beliefs about learning had not change during the study, but were "clarified" as a result of my first comprehensive "use of the [TGfU] model" (Interview 2, December 17, 2009). I had studied the learning theories that currently form the base of the TGfU model (constructivism, complex learning theory, situated learning theory, and non linear pedagogy), and was able to see these theories applied during my adoption of the TGfU model. As a result, like James, I was able to see glimpses of how the game became the teacher.

However, this was not simply a choice using different games or changing superficial aspects of the way one taught. For example, the first challenge was clarify my understanding of how students learn in physical education. When initially presented with this issue by my thesis supervisor, it seemed like a fairly basic question, but quickly revealed some fundamental problems in the way I taught.

> *When I began teaching I conducted my lessons the way I had learned in university. I taught the requisite skills by breaking them down and applying them in drills that I thought were appropriate for the students. Evaluation consisted of me observing the students performed in the drills. Evaluation was performed by testing the students on the skills within a familiar drill.*
>
> *However, after a few years I noticed that my teaching was not having an appreciable effect on student learning and performance. This was blatantly obvious as I found that students rarely improved their game play, even when they applied themselves to skill development activities. And for students that did not apply themselves…I thought they must be lazy or have a bad attitude. I didn't know why some students did not like playing. What was their problem?*
>
> *I knew I was doing a good job of organizing and managing my classes, I believed I presented the content well and gave important feedback, I related well with students,*

and I believed most students were active during the lessons; however, I felt that they were not learning anything. I tried to make various changes such as refining my demonstrations and organizing activities according to ability, but they rarely produced any significant results.

It was not until I clarified my intent (aim) as a PE teacher, deepened my understanding of how students learn, and considered student needs and wants that I began to define the problems I was having. At the same time, being exposed to the TGfU model began to present some possible solutions. For example, I found (or should I say remembered) that many teenage students are at a stage where they are extremely sensitive to their peers' opinions. Add that to being asked to play an activity that they are not familiar with and this provides a perfect opportunity for publically witnessed failure and it is not difficult to understand student reluctance.

While facilitating student learning still presents significant challenges, engaging in the process of learning to be a better teacher has become a model from which to base my change in pedagogy. I now understand (or remember) that understanding comes before physical development: I might get it, but I still cannot do it (well). I remember that it takes a lot of time to learn and refine athletic skills and that I never focused on "how to play" when I was younger because my coaches never focused on understanding, I only began to understand games when I was an adult. So, as a teacher is it reasonable expect skill refinement in a two-week unit from all students? Maybe some, but I need to be realistic, understand my students thoughts and feelings, and remember to focus on learning, not performance.

As a teacher seeking improvement, I have become a learner again.

Some of the problems that I identified were my adherence to a teacher centered learning environment, a lack of cognitive engagement by students, and student apathy towards PE. However, throughout the study, my journals and contributions to the professional learning community forum began to reveal a deeper understanding of these challenges. For example, I observed that through the implementation of the TGfU model,

students learned how to apply their tactical knowledge better in games, that is, they came to understand what to do in the games faster and more comprehensively than in the past. While their skills still did not necessarily improve as quickly (compared to previous technically based instructional efforts) students developed a general idea how to play the overall game more effectively. For example, during our soccer unit, students still struggled with the difficulties of passing and moving to open space, but when we introduced game modifications that included having a support player that could not be covered (creates time) I could see by their movements that they were getting better at knowing where to go and what to do (My journal). This was achieved by allowing the game to become the teacher by modifying it to accommodate student ability levels and focus on a specific tactical aspect. By letting the game become the teacher, I was relinquishing some control and fostering a more student centered learning environment.

In addition, questioning enhanced student understanding. I found questioning to be challenging because it was difficult to gauge what students knew as their understanding usually outstripped their performance. However, by posing pertinent questions to individuals, I was attempting to bring the concepts to a conscious level by shifting the focus of learning to include not only what I was saying, but also what students experienced in their games (Rink, 2001). While this may not have translated immediately to play, at times when my questions were pertinent, students seemed to be challenged and looking make different decisions about their play (Interview 2, December 17, 2009).

For me, implementation of the model also highlighted another issue: my relative ignorance of affective learning in PE. While I talked about affective values throughout my journal, interviews, and meeting dialogues, my participation in the study revealed that my lessons did not provide many explicit affective learning opportunities for students to learn in this area. As a result, students resorted to their previous experiences including behaviors that were not consistent with being an active and healthy person (such as apathy, lack of thoughtfulness about their actions in games, and a lack of awareness of other's feelings) (Interview 2, December 17, 2009).

My beliefs about learning were clarified during the study because I was able to deepen my understanding of the learning process and see a way of applying these theories through the use of the TGfU model. The study revealed that students learn in different ways, at different rates, and that learning can be enriched if students are able to assume some control of it.

Changes in Participants' Assessment Practices

I began my graduate studies because of assessment. From the time I began teaching PE my assessment practices seemed cumbersome and ineffective. The methods I was using to assess student learning and the content I was assessing seemed to contribute very little to the overall learning process. Moreover, I noticed that many of my colleagues mentioned similar experiences and we had resorted to basing our assessment on participation in class (a general assessment that encompassed effort, focus, interaction with others, wearing gym strip, and compliance), and varying forms of a holistic game observation. I also noticed that the assessment practices of many PE teachers, including myself, were a relatively insignificant affair. While we were good at giving informal feedback, assessment often did not involve students until a grade was posted. This practice disassociated assessment from the learning process.

Furthermore, as I began to think about assessment I found myself forced to think about what I was teaching. I knew physical activity offered many benefits and opportunities for learning, but I was not observing these opportunities in my classes. I did not understand all the reasons why students were not learning as much as I thought they should; however, I thought my assessment practices might have been a factor.

During the study all four participants reported that they did not change their assessment practices appreciatively. Assessment remained something that did not involve students, was very general in nature, was done for reporting, and always came at the end of the unit of instruction. However, in their final interviews, my colleagues did make several comments that suggested they now saw a need to change their assessment practices and had gained a deeper understanding of the integral role of assessment within the TGfU model.

While Steve stated that his assessment practices did not change appreciatively during the study, he did try different methods of formative assessment and recognized the potential benefits to learning. For example, Steve began to use questioning as a formative assessment tool to elicit student understanding of the underlying game concepts. Specifically, Steve noted that he needed to use questioning more often in an effort to change his coaching tendencies of "simply telling students what was important" (Interview 2, December 16, 2009). In doing so, Steve recognized the constructivist nature of TGfU, and in that learning in a PE class was not the same as telling a trained athlete how to improve their performance. That is, from a constructivist point of view, the learning benefits of a game emerge when the teacher allows the students to identify

problems after playing, answer pertinent questions (problem solve), and then test their solutions in the game.

Steve also commented on the potential for students of different ability levels to help each other understand what is going on in the game. He explained the learning benefits of students teaching each other and how smaller student groupings, often used in TGfU, helped facilitate this peer teaching if the teacher was able to effectively facilitate the process (Interview 2, December 16, 2009). As a result, while Steve did not experiment directly with peer assessment, he recognized that the small groups used in TGfU and its theme of contructivist learning would facilitate a peer teaching environment, allowing this powerful learning medium to emerge.

Similarly, James attempted to implement self assessment by using questioning to encourage student reflection. However, he went on to explain how he encouraged students to evaluate their play, and how he provided feedback to students on how to improve their play.

In discussing his understanding of assessment, James maintained his view of assessment as being based on "skill[s],… movement based and more about active living and their attitude" (Interview 2, December 16, 2009). In this sense, James claimed that the TGfU model was effective because it focused on authentic game play. As a result, TGfU encouraged James to "look a little more at the actual game…strategy than on individual skills…and [ask himself] what [are] they doing" (Interview 2, December 16, 2009)? Hence, while James's assessment practice did not change appreciatively, he was

beginning to think differently about what was important for learning in games and the process of how to assess it.

For Brad, a lack of time during the study prohibited him from trying new assessment methods. However, Brad noted that during his TGfU units he saw a need to assess for understanding throughout the unit and to expand his summative assessment to include the cognitive and psychomotor outcomes that his teaching focused on. For example, Brad realized a need to include students more in the assessment process because he saw the potential for learning when he used questioning as a formative assessment tool (Interview 2, December 14, 2009). In addition to adopting more student-based formative assessment practices, Brad also saw the need to align his summative assessment practices to the outcomes that his lessons focused on. He stated that general game play marks no longer had as much meaning and that more focused assessment methods such as written assessments and focused play tests might be more appropriate (Interview 2, December 14, 2009).

During the study I used questioning and tried student peer assessment. While questioning yielded variable levels of success, I felt that the peer assessment methods I tried were cumbersome, time consuming, and I was unsure whether they contributed to student learning.

Regarding questioning, I found that it was often difficult to ask the appropriate question that would challenge student understanding of the game because the students did not value the role of assessment within the learning process. For example, during my grade 9 basketball unit we used peer assessment to better understand how quick changes

in direction can aid in create space so one receive a pass. Students performed the games and completed their peer assessment assignments with varying degrees of success, but when I re-emphasized that the activity was going to be graded several students that had finished hastily wanted their sheets back (presumably to do a better job) (My journal). This lack of value and understanding given to how assessment relates to the learning process (of which assessment is an important aspect) was a noticeable weakness with how students engaged in class and made it difficult to conduct formative assessment. I began to wonder whether students actually knew how to solve their problems and simply were not doing it, or whether they legitimately did not understand that part of the game.

As for peer assessment, I noted in my final interview that while I believed in involving students more in the assessment process, finding an effective way to incorporate such assessment was difficult. I described my attempts as "cumbersome and time consuming" because I had to first teach students how to use the assessment tools and then allocate time for them to complete the task (Interview 2, December 17, 2009). Naturally, students took varying amounts of time to understand the task, finished at different times, and produced peer assessments that varied widely in their insight and usefulness. Nonetheless, and despite my lack of success, I saw evidence that for some students, their involvement in the peer assessment process was beneficial in that they were discussing pertinent aspects of the game, but I also noted that I needed to refine my delivery to incorporate a gradual exposure to the process of peer assessment. Whereas my attempt used a rubric to look at several aspects of tactical play, I needed to introduce

peer assessment with a simple observation task and develop student understanding and assessment skills from there (Interview 2, December 17, 2009).

Finally, I noted that incorporating more student-centered formative assessment methods into my lessons made me think about the focus of each lesson and how the learning environment should be designed to maximize learning. While it was obvious that clear learning goals and student involvement contributed to enhancing this environment, I found that I was still working on how to create reciprocal processes of learning that involved student observation and evaluation of the game environment and teacher feedback. However, whether students engaged in the peer assessment for marks or because they valued its potential for learning, they nevertheless were observing, discussing, and thinking critically about the lesson material (My journal). While this may have been a new learning dimension to their physical education, it brought this process of learning to a conscious level and exposed students to some of the critical aspects necessary for understanding games.

Clearly, the four participants entered the study with a philosophy of assessment that disassociated it from the learning process. However, their comments and insights suggest that their experiences during the study demonstrated how assessment can and should be recognized as an integral part of learning (Earl, 2003). Often the participants did not consider their feedback and questioning methods as formative assessment. Moreover, several participants mentioned time as a constraint in attempting to use different assessment methods. Teachers' coaching experiences also contributed in that they were used to telling students what they needed to do and expected students to listen

and execute their directions. While this might have merit for students that are at a higher-level understanding and performance in the given activity, it is unreasonable to expect all students to be capable of this method of learning. Moreover, giving students the feedback necessary to improve performance may limit the potential of learning because the student's previous knowledge is not considered. As a result, the teacher is making assumptions based solely on their own observations and basing their feedback solely on their individual perception. By involving students, the teacher not only gains access to the student's perceptions, but also is encouraging the student to become actively involved in their own learning. This latter aspect is vital if the goal is to teach students how to be active learner throughout their lives.

Development of Our Professional Learning Community

As Fullan (2007) outlines, the successful development of professional learning communities requires several factors: "reflective dialogue, deprivatization of practice, collective focus on student learning, collaboration, and shared norms and values" (p. 149-150). Throughout the study we attempted to achieve these criteria. For example, within meetings, we discussed important aspects of our practice that each participant chose to discuss or that emerged in the learning journals. In doing so, each participants practice was laid out for discussion (deprivatization); colleagues were able to collaborate in an effort to improve student learning (reflective dialogue, focus on learning); and we were able to share our experiences in an effort to improve our practice (shared norms and values). As a result, our professional learning community we were able to mutually benefit from each other despite the fact that we were using different teaching models.

CHAPTER 6: MY CONCLUSIONS

The purpose of this study was to determine if the introduction of a new teaching model (TGfU) to a group of physical education teachers would facilitate a better understanding of learning and thus inform us on how we can improve learning for our students. During the study it was clear that all of us had felt dissatisfied with our PE classes on some level. While learning in PE entails a host of complex processes, how we understood learning and the way we taught was a significant factor in the learning that was occurring. However, the introduction of the TGfU model helped to expose some of the issues that we were facing and offered new ways of thinking about learning and teaching. With the implementation of a different instructional model change occurred: we gained insight into what we were currently doing, clarified our aims and objectives, and observed how the model presented a different way of facilitating learning.

Insights into Our Past

I am not sure if each of my colleagues in the study realized the significance of the interview questions pertaining to their past educational, sports, and coaching experiences, but it was clear to me that we had followed a similar path throughout our lives. Consequently, we share many experiences and beliefs about learning and teaching. These beliefs are manifested in our practice; however, our experiences and values are not shared with the majority of our students. For this reason, and many others, we cannot expect our students to learn the way we were taught (a technically based approach delivered solely through the direct instruction model within a multi-activity curriculum model). While these instructional models and approaches are not without use, they

constitute one way of offering instruction and therefore cannot be deemed an appropriate approach for every unit or a suitable learning context for every student.

Each of us realized the disparity between what we were doing and what our overall aim was at some time during the study. For instance, I initiated the study because I was dissatisfied with my teaching. This dissatisfaction stemmed from my observations that my students were simply not learning or progressing as I thought they should. In fact, I felt some students made no progress except to further distance themselves from the lifestyle that I was trying to promote. Similarly, James described his dissatisfaction with the engagement levels of students in his volleyball class, and Brad stated in his initial interview that he was looking for "a different method…[and a desire to] diversify the curriculum" (Interview 2, December 14th, 2009). In doing so, we recognized that what we intended for our students was not fully manifesting in our lessons.

One of the reasons why our approach was not advancing student learning was because it was teacher centered and therefore did not have the capacity to cater to students' individual learning needs. Moreover, it was focused on psychomotor content: the technical skills required to play the game. While skill development is vital to improving one's ability to play a game, it is not the only factor required. Understanding the tactics and strategies and the ability to relate with others in a variety of situations are equally important for students to develop if they are to be successful and enjoy their time playing games. Our dissatisfaction and that of our students was the result of us not offering a holistic approach that encompasses the development of abilities, understanding and social skills during PE.

One of the last units I taught to my PE 10 class last year (softball) summed up my thoughts about the efficacy of my teaching. As was commonly the case, for the most part my students had played hard and often enjoyed their games, they even seemed to get incrementally better by the end of the two weeks, but I felt like they had not learned anything of significance. They had not made any progress towards gaining an appreciation or understanding of the game. I had set the goals of the unit, wrote up criteria, and done all the assessment. The students showed up and played. They simply were not fully engaged in the learning process because they had no connection with the content. My intentions for their learning were too broad and did not take into account the learning needs of the students. As a result, they the students were unable to engage because of prior experience or they were left out.

Student Centered Learning

Fullan (2007) states that change "ultimately comes down to what is going on in one's head, but the stimulation comes from new experiences that give us something new to think about" (p. 41). Incorporating the TGfU model, even to a partial degree, provided a new experience for us that contrasted with our current practice and provoked new ideas about learning.

The most significant change to thinking that came about for all of us was the realization that striving towards a more student centered learning environment is vital if we are to enable our diverse population of students to truly learn what is important in our PE classes. This involves inviting students to learn through activities that are designed to challenge students' current ability levels and knowledge. It also entails allowing students to learn how to think about and make decisions about their learning by creating situations in which they can practice these processes.

I finally realized that it is not just what I do or say to students that provokes their curiosity, or convinces them to become interested in a game. My values, intentions, criteria for success, assessments, and instructional strategies do not create learning, they simply contribute (or don't) to an environment in which learning can occur. The "student learns, the teacher helps…sometimes" (Rod Thorpe: keynote lecture, 4th International TGfU Conference, May 16th, 2008). This statement clarified my role as a teacher within the complex system of a PE class; that is one of facilitator, not of transmitter. As Davis, Sumara, and Luce-Kapler (2008) state in their explanation of complexity theory and complex systems, "exactly what *is learned is determined by the system, not by the event that triggers the learning" (p. 80-81).*

Student centered learning means that each student has the opportunity to contribute to the learning environment beyond simple play. That is they actively contribute to developing criteria for success, they learn to evaluate themselves and their peers, and they consciously engage in the learning activities on a cognitive level in addition to physically playing. In effect, over time students learn the physical, cognitive, and affective skills required to lead an engaging and active lifestyle without the teacher being present. The TGfU model demonstrated the potential of student centered learning when we used questioning that engaged students' thinking. While the development of a student centered learning environment is a work in progress, using a different model enabled us to see a different domain of learning being engaged.

In addition, a critical feature of student centered learning allowing the student to adapt the learning environment according to their own values, abilities, and level of understanding. It is not useful to incorporate a drill designed to refine a skill that students are not capable of using in the game because the students may not perceive the activity as

being relative to their current understanding. Conversely, the TGfU model seeks to bring the game to the students by modifying the game to meet their ability levels. This is done most effectively when the students make the decisions as to how the game will be modified, what the criteria for success are, and are involved in their own formative assessment.

In attempting to move towards such a learning environment, Brad and I saw an increase in student understanding of how the game was played through the use of modified games and questioning, and James and Steve observed higher levels of participation in their modified games. These enhancements convinced us that students were engaging in a different way. They were thinking more, and better able to understand the context of the game. As we move forward and learn to adapt our lessons more effectively to our students learning needs, I believe that students will continue to demonstrate an increasing level of participation and a greater understanding of the games we play.

Assessment was another aspect of student centered learning. Prior to the study our assessment practices focused on participation and some general aspects of game play. Moreover, these practices did not usually involve students. In essence, our assessment was removed from the learning process and used as a summative tool to provide data in order to give a grade.

My graduate studies began with my problems with assessment in PE. I felt it was not very useful except for producing a required grade (which I felt was often not very useful either). However, looking back, formative assessment (or the analysis of one's performance in situ by oneself or another) is vital for learning because it represents

cognitive engagement. It has to be a part of the learning process otherwise there is a limited avenue for improvement. It does not have to be complex. In fact, a simple procedure allows the performer to get back to the game faster; however, the assessment must be based on established knowledge of the game. As a PE teacher, I am good at giving feedback, but this only provides a one way source of information for students and it does not give them an opportunity to learn and practice the process I am using to help them learn. They need to learn the skills that I have so that they can continue to learn when I am not around. This is the essence of the aim of PE. Lead an active lifestyle: but how? We need to be actively engaged in our own and others learning so that we can continue to be actively engaged as we grow and change.

However, assessment is more than this. Improvement and learning cannot occur if we are not able to critically reflect (however informally) on what we have done. Just as it is essential for members of our professional learning community to be open, reflective, and constructively critical in an effort to learn and improve, so too do students need to be progressively taught these processes. Learning involves perceiving the environment and how to engage in it, planning how one will engage, doing, and evaluation of one's performance. If we continue to leave out the last step of the learning process, student motivation to continue engaging in PE will continue to diminish.

Despite the fact that the study did not see great progress in attempting to implement more effective assessment practices, implementation of the model did serve to highlight the importance of formative, student centered assessment. For example, both James and Brad discussed how their use of modified games and questioning enabled students to "have more ownership" and to "explore and learn how that's (the tactical skill) going to take place" during the learning process (Interview 2, December 14 & 16, 2009). These observations indicate that James and Brad realized the potential if students

are taught how to learn. Because their observations indicated that assessment is such a vital ingredient in the learning process, their final interview comments regarding assessment centered on what they hope their assessment practice can become in the future. For instance, Brad noted that "It's kinda hard to do TGfU without some type of written test…and some type of peer assessment" (Interview 2, December 14, 2009).

Finally, my experiences centered on the diverse nature of assessment and the critical ingredients necessary to make it useful to learning. For example, assessment can be used to inform the teacher about how much the students have learned (teacher assessment for learning), but ultimately we want the students to be informing themselves (self assessment as learning). However, this is not simply a task that can be handed to students to complete. It requires them to bring their knowledge of the activity and use their interpersonal skills in a collaborative learning experience with their peers. In addition, students must be clear about the goal of the activity and what the criteria for success are. If students are involved in generating these goals and criteria then they will be more meaningful to them, will be adapted by them and be owned by them now and in the future.

During the study the role of the affective domain came to be a significant factor for learning that I came to believe we were not paying enough attention to. As I analyzed the study data I continued to presume that we had largely ignored the affective domain. However, I now understand that we are paying attention to the affective domain. Each of us has not only commented many times about the importance of the affective aspects in terms of learning, we also noted how the TGfU model positively impacted these social dimensions. For example, Brad described how student interaction and communication increased because students were talking more about the game and James noted that

students of varying abilities seemed to be more engaged and having more fun doing it. We already knew why these positive affective outcomes were so vital: they are within the social skills that create the relationships we need to come together in play and to continue learning, improving, and growing (such success is a major motivator in keeping us coming back for more). So, for me, the affective domain has come to the forefront of my attention. It is also the most complex domain of learning.

Student centered learning was the major theme that emerged from this study. In terms of understanding student learning I believe integration of the TGfU model invoked a deeper understanding of how the learning environment can be modified to meet students' individual needs and that this is vitally necessary for meaningful learning to occur.

Our Professional Learning Community

The collaboration that occurred within our professional learning community was one of the main factors that enabled change because it was the medium in which our ideas spread and developed. Time was mentioned by most of us as the most important ingredient of the professional learning community both in terms of making time to meet and in terms of the timeliness of the meetings. Time is always a factor. For secondary PE teachers coaching is always cited as requiring a major investment in time. However, the importance of collaborative learning for teachers must be paramount. Teacher collaboration benefits all students and allows teachers to benefit from one another's experiences.

Steve also mentioned that a central person responsible for coordination of the professional learning community is a necessity. In addressing this issue, Tozer &

Horsley (2006) state that principals can and should support efforts for teacher collaboration. Moreover, Steve noted that it was beneficial for him to be able to discuss aspects of his teaching with his departmental colleagues as well as with colleagues from another school. Ultimately, my colleagues and I agree that professional collaboration has to be regularly occurring, to be supported by leadership (preferably with time), and to be focused on student learning.

What's Next

As this study comes to a close my colleagues and I are already preparing for next year by setting a schedule of Professional Learning Community meetings and inviting other colleagues to join. Improvement to the electronic communication system initiated as part of this research project will occur with a list serve or some other electronic platform that will enable easy and quick discussion and exchanges of ideas and information.

In addition, we are planning to conduct professional development sessions focusing on the TGfU model in an effort to build capacity among ourselves and our colleagues. The TGfU model succeeded in changing our understanding of learning and may help others do the same.

Finally, in an effort to maintain our identity as learners we will continue to refine and expand our use of the TGfU model. In addition, other models will be investigated to determine their suitability for different groups of students and various teaching contexts. For example, we are thinking that a hybrid of the TGfU model and the Sport Education Model might be especially suitable for senior PE students because the TGfU model

provides a strong, student centered pedagogical model and the Sport Education model addresses the senior PE student's needs for independent learning (Alexander & Penney, 2005; Collier, 2005; Hastie & Curtner-Smith, 2006). Finally, the role of assessment for and as learning, and the affective domain and its contribution to learning and the overall aim of PE will continue to be a focus of mine.

Final Thoughts

The TGfU model provided this professional learning community with an impetus to change our understanding of how students learn in PE. By adopting either part or the entire model, my colleagues and I were able to witness how games can be modified to suit learner needs. Understanding can be fostered by focusing on specific tactical outcomes coupled with the incorporation of a questioning approach. In doing so, student interaction and communication is promoted in addition to problem solving and critical thinking in relation to the challenges of the environment. Overall, the TGfU model presents a viable approach for any PE teacher wishing to adopt a more holistic approach to teaching Physical Education; to offer an impetus to reframe learning as an adaptive process based on learner/environment interactions.

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APPENDIX A

Initial Interview Questions

Learning Masters Initial Interview September, 2009

1. Can you just start off and tell me a little bit about your professional teacher education and experience?

2. How about your personal experience participating in sports and game play experience?

3. How about coaching experience? Your recent experience?

4. (a) What do you believe is the overall aim of PE? (b) What is the purpose of learning Games in Physical Education?

5. Can you describe how a games lesson begins in your class? What does it look like?

6. How do students learn games in your class? Different students learn in different ways. Can you describe that?

7. Describe in general what it looks like when you teach. Paint a picture of what's going on.

8. How do you interact with students during games to help them to learn? How do you facilitate their learning and their play?

9. How do you help students learn to work and play together? How do you facilitate the social and collaborative aspect of games?

10. (a) What does success look like in a games class? (b) How do you assess success? (c) How do you think your assessment reflects what has been taught and what has been learned? (Referring specifically to student diversity here)

11. How do you think teachers learn and improve their practice and what is required in order to do this?

APPENDIX B

Final Interview Questions

Learning Masters Final Study Interview December 14, 2009

1. What drew you to the ideas surrounding the TGfU model and what are your current thoughts about it? What ideas surrounding learning and teaching in PE did you find most significant?

2. Do you think your beliefs, values, ideas about teaching and learning in PE have changed as a result of being exposed to TGfU and this learning collaboration? Explain.

3. Were you able to try some of the pedagogical methods such as small sided games, questioning, and self assessment? What was the result? What went well or still needs work? Can you give an example of how the different way of teaching affected student learning in your class?

4. As a result of your exposure to the TGfU model and collaboration with colleagues, how do you now understand how people learn games? What is required of an environment for quality learning to occur?

5. Has your understanding of the aim of PE changed?

6. Has your views about assessment changed at all? Were you able to try some different assessment practices? Describe the experience.

7. Considering your answers to the above questions, what would a perfect PE lesson look like to you? What is required to achieve success for every student? What are the skills, behaviours, knowledge, and attitudes that we are trying to foster (the culture)? What is your role?

8. Can you think of any student comments or situations that would suggest a more successful experience was occurring?

9. What aspects of the professional learning community did you find useful/beneficial? What did not work? Why?

10. If teacher collaboration is important, what would it look like in an optimal situation?

APPENDIX C

Teaching Perspectives Inventory Survey Results for Steve

Table 1: TPI Results for Steve

	Transmission Perspective	Apprenticeship Perspective	Developmental Perspective	Nurturing Perspective	Social Responsibility Perspective
Pre-Study	30 7-11-12	30 10-11-9	30 9-11-10	34 12-12-10	25 9-7-9
Post Study	22 9-3-10	35 11-12-12	29 9-11-9	34 12-12-10	23 9-7-7

Note: bottom scores indicate participants' beliefs, intentions, and actions scores

APPENDIX D

Teaching Perspectives Inventory Survey Results for James

Table 2: TPI Results for James

	Transmission Perspective	Apprenticeship Perspective	Developmental Perspective	Nurturing Perspective	Social Responsibility Perspective
Pre-Study	31 12-7-12	34 11-12-11	29 10-11-18	33 11-12-11	23 9-7-7
Post Study	30 12-6-12	33 10-12-11	28 10-11-7	33 11-12-10	24 9-7-8

Note: bottom scores indicate participants' beliefs, intentions, and actions scores

APPENDIX E

Teaching Perspectives Inventory Survey Results for Brad

Table 3: TPI Results for Brad

	Transmission Perspective	Apprenticeship Perspective	Developmental Perspective	Nurturing Perspective	Social Responsibility Perspective
Pre-Study	39 15-10-14	41 13-15-13	41 13-15-13	30 12-11-7	28 12-8-8
Post Study	38 15-9-14	39 13-14-12	34 12-11-11	31 12-10-9	28 10-9-9

Note: bottom scores indicate participants' beliefs, intentions, and actions scores

APPENDIX F

Teaching Perspectives Inventory Survey Results for Me (researcher)

Table 4: TPI Results for Me (researcher)

	Transmission Perspective	Apprenticeship Perspective	Developmental Perspective	Nurturing Perspective	Social Responsibility Perspective
Pre-Study	30 8-9-12	35 11-10-14	41 12-15-14	37 13-12-12	30 10-10-10
Post Study	25 8-8-9	28 10-9-9	34 11-14-9	32 12-12-8	26 10-9-7

Note: bottom scores indicate participants' beliefs, intentions, and actions scores