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The Tactical Games Model Sport Experience: An Examination of Student Motivation and Game Performance during an Ultimate Frisbee Unit

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THE TACTICAL GAMES MODEL SPORT EXPERIENCE: AN EXAMINATION OF STUDENT MOTIVATION AND GAME PERFORMANCE DURING AN ULTIMATE FRISBEE UNIT

A Dissertation Presented

By

ERIC J. CARPENTER

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DEDICATION

This publication is dedicated to my beautiful and extremely patient wife Karolina. You are the best and your support was invaluable!!

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ABSTRACT

THE TACTICAL GAMES MODEL SPORT EXPERIENCE: AN EXAMINATION OF STUDENT MOTIVATION AND GAME PERFORMANCE DURING AN ULTIMATE FRISBEE UNIT

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Students benefit from positive sport experiences in physical education. If designed well, sport provides a social avenue for physical activity and strengthens student achievement in psychomotor (e.g., motor skill), cognitive (e.g., decision-making), and affective (e.g., personal and social responsibility) learning domains. Unfortunately, not all students receive quality sport instruction and many students fail to have positive sport experiences in physical education. The Tactical Games Model (TGM, Griffin, Mitchell, & Oslin, 1997) is an instructional model focused on improving student sport experiences. As a constructivist approach to teaching and learning sport, TGM reshapes sport lessons to allow students to experience small-sided games (Game 1), think critically about games playing (Q & A), practice aspects of playing (Situated Practice), and show improvement in games playing (Game 2). TGM literature includes practitioner reports about involvement (Berkowitz, 1996) and findings that show measures of game performance (e.g., skill execution, decision-making) during a TGM sport unit (Allison & Thorpe, 1997; Turner & Martinek, 1999). Limited data is available to explain how the constructivist nature of TGM influences motivation (Griffin & Patton, 2005; Rink, 2001).

The purpose of this qualitative study was to examine motivation using situational interest theory (Chen, Darst, & Pangrazi, 1999; Mitchell, 1993) to interpret participant – learning situation (Game 1, Q & A, Practice, and Game 2) experiences during an eight-day TGM Ultimate Frisbee unit. The researcher acted as teacher-researcher and participants were 15 fifth graders (assigned to heterogeneous teams) and Mia, the regular physical education teacher and participant-observer. Data were collected using surveys, learning situation questionnaires, interviews, and systematic observations using the Game Performance Assessment Instrument (GPAI, Oslin, Mitchell, & Griffin, 1998). Data analysis incorporated open and axial coding (Strauss & Corbin, 1998), theoretical comparisons (Strauss & Corbin, 1998), and concept mapping (Rossman & Rallis, 2003). Findings show that participants': (a) participated in daily lessons regardless of gender, goal orientation, skill/effort level, and personal interest in Ultimate, (b) were excited to play games (Game 1, Game 2) because they wanted to move, liked Ultimate, and/or wanted to assess skills/playing, (c) required challenging conditions, positive competition, and/or individual/team success in order to have a positive participant-games playing experience, (d) entered Q & A and Practice expecting to learn something new, (e) stayed interested in Q & A if they received answers, learned facts/rules, and/or felt the discussion helped team, (f) remained involved in Practice if team worked well, task was fun, and/or they learned skill/strategy, and (g) perceived improvements in games playing (e.g., throwing). Mia concluded that participants: (a) were motivated to play, (b) were involved in the different learning situations, and (c) improved games playing during the unit. GPAI scores confirmed that participants' improved at least one area of game performance (e.g., skill execution-passing) between Day 3 (week 1) and Day 7 (week 2).

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CHAPTER 1

INTRODUCTION

Students deserve meaningful physical education classes that introduce a variety of movement experiences (e.g., sport, dance, fitness, and aquatics). If taught well, each of these movement experiences provides an avenue for lifelong physical activity and contributes to student learning in K-12 schools. For example, a positive sport experience offers a social avenue for physical activity and strengthens student achievement in the psychomotor (e.g., motor skill improvement), cognitive (e.g., better decision-making), and affective (e.g., development of personal and social responsibility) learning domains. Unfortunately, many students are having negative sport experiences due to poor instruction and inappropriate practices in physical education (Hastie, 2003; Zidon, 1991). A teacher's instructional approach influences whether or not a student has a positive or negative sport experience. Therefore, a positive sport experience is not automatic but the result of careful planning, effective teaching, and meaningful learning experiences.

Inappropriate practices in sport instruction and a culture of accepting 'Busy, Happy, and Good' (BHG, Placek, 1983) as student success in sport persist as challenges for physical education. Examples of inappropriate practices in sport that continue in weaker physical education programs include: (a) introducing mini-units for three or four days with low expectations for improved competence and learning key concepts, (b) repeating simple sport skill drills (e.g., basketball knockout, soccer relays dribbling through cones) year after year starting in upper elementary and continuing into high school electives, (c) expecting average and lower skilled students to participate and succeed in large-sided games, and (d) accepting that some students will maintain low

skill levels and poor game play (Hastie, 2003; NASPE & MASSPEC, 2004). During a speech in South Korea, Placek (2001) confirmed that the physical education literature identifies teachers' maintaining a BHG expectation for students as an ongoing concern for the physical education profession. Furthermore, she called on the physical education community to help teachers' move beyond the low expectation of BHG toward 'BHG plus learning' and to focus in on the absence or presence of learning goals during physical education class.

The National Association for Sport and Physical Education (NASPE, 2004) set national standards for learning in K-12 physical education and established guidelines for Quality Physical Education (QPE) Programs. NASPE communicates that QPE programs must include the following components: (a) opportunity to learn, (b) meaningful content, and (c) appropriate instruction. Most physical education teachers are planning lessons and units using national and state standards, learning more about QPE, and adopting strategies to improve student movement experiences at their school. For sport lessons, these teachers incorporate unique equipment (e.g., beach balls, trainer volleyballs), organize modified games with customized playing areas (e.g., extra courts/nets, blankets placed over nets), and introduce both popular (e.g., soccer, volleyball, basketball) and little known sports (e.g., pickleball, cricket, water polo) to increase student options for lifelong physical activity through sport. Beyond using standards and spicing up sport lessons with creative strategies, instructional models represent a comprehensive way for teachers to design and teach meaningful physical education units that maximize motivation and learning (Griffin, Dodds, Rovegno, 1996; Metzler, 2005; Rovegno, 2003).

The Tactical Games Model (TGM) stands out within the list of instructional models for physical education (Metzler, 2005) due to roots in constructivism (Ennis, Griffin, & Rovegno, 2006; Griffin, Butler, Lombardo, & Nastasi, 2003; Griffin & Patton, 2005; Metzler, 2005; Mitchell, Oslin, Griffin, 2006). I am using the term Tactical Games Model (TGM, Griffin, Mitchell, & Oslin, 1997) throughout this manuscript instead of Teaching Games for Understanding (TGfU, Bunker & Thorpe, 1982) language. This decision was made based on my work with Linda Griffin in the United States and aims to offer consistent terminology for the reader. TGM language is visible in key resources for teachers learning to use instructional models to teach sport like Metzler's book titled, *Instructional Models for Physical Education* and the *Game-Centered Approaches to Teaching Physical Education* chapter by Oslin and Mitchell (2006) in the Handbook of Physical Education. Ultimately, Mitchell, Oslin, and Griffin wrote: "The name does not matter" (2006, p. 540) to stress that the common goals of TGfU, TGM, and other versions of TGfU around the world (Game Sense in Australia) are to emphasize learning through games playing, encourage student problem solving in game situations, and help students become better games players.

Based on the Teaching Games for Understanding (TGfU) framework developed by Bunker and Thorpe (1982) in England, Griffin, Mitchell, and Oslin (1997) introduced TGM to the United States physical education community as a way to improve student sport experiences in physical education. Instead of viewing games as a culminating event during a sports unit, TGM prioritizes learning through small-sided games and encourages students to solve common tactical problems occurring during modified/conditioned game situations (Hopper, 2002; Mitchell & Griffin, 1994). Also, TGM aims to activate the

learner during a sequence of purposeful learning situations (Game 1, Q&A, Practice, and Game 2).

As a constructivist approach to teaching and learning sport, TGM sport lessons involve students in the learning process by challenging them to think critically about what skills, movements, and decisions are needed to solve common problems occurring in game situations (Doolittle & Girard, 1991; Mitchell, Oslin, & Griffin, 2006). Lemlech (2002) describes a constructivist approach as: "An approach that encourages students to structure personal understanding through an active learning experience" (p. 20). Games and game situations are built into a purposeful whole-part-whole sequence of TGM learning situations (Game 1, Q & A, Practice, and Game 2) to help students develop tactical awareness and improve their overall games playing/game performance (Mitchell, Oslin, & Griffin, 2006). Mitchell, Oslin, and Griffin define tactical awareness as: "The ability to identify tactical problems that arise during a game and to respond appropriately." (p. 8).

If a reasonable version of the model is used (Metzler, 2005), each TGM lesson allows students to experience games playing (Game 1), discuss their games playing experience (Q & A), practice aspects of games playing (Situated Practice), and show improvement during a culminating games playing experience (Game 2). Advocates of TGM credit the constructivist nature of the model (e.g., learner becomes active problem solver within TGM sequence) as the catalyst for increased motivation and enhanced learning (Griffin, Butler, Lombardo, & Nastasi, 2003; Griffin & Patton, 2005; Mitchell, Oslin, Griffin, 2006). Limited findings are available to explain how the constructivist

nature of TGM influences student motivation, improvement, and learning within the model (Griffin & Patton, 2005; Rink, 2001).

At present time, TGM literature includes practitioner reports about student involvement and a growing set of findings that show measures of game performance (e.g., skill execution, decision-making) during a TGM sport unit. Positive teacher reports about increased student participation and improved games playing during TGM sport units (Berkowitz, 1996; Mitchell, Griffin, & Oslin, 1997) and findings that describe improved skill execution, off-the-ball movements, and/or decision-making during games support TGM as an effective way to teach and learn sport in physical education. Examples of student improvement during TGM units include: (a) improved ball control and passing in field hockey (Turner & Martinek, 1999), (b) improved support of teammates during a soccer unit (Mitchell, Oslin, & Griffin, 1995), and (c) improved decision-making about passing and tackling in field hockey (Turner, 1996). Other interesting findings that need further investigation include: (a) students in a tactical group had higher percentages of game involvement (Allison & Thorpe, 1997; Mitchell, Oslin, & Griffin, 1995), (b) students in a tactical group showed gains in tactical knowledge in soccer (Mitchell, Griffin, & Oslin, 1997), and (c) tactical students frequently reported that their abilities to use strategies improved (Tjeerdsma, Rink, & Graham, 1996). Continued research is needed to identify student outcomes during TGM sport units and better explain student TGM sport experiences.

Motivation is considered an influence on improvement and learning in educational settings but few TGM studies have investigated the role of student motivation during a TGM sport unit (Mitchell, Griffin, & Oslin, 1997; Wallhead & Deglau, 2004).

Studies that examine the constructivist nature of TGM are needed to explain how the conditions/learning situations introduced within the TGM sequence of learning situations (Game 1, Q&A, Practice, and Game 2) influence student motivation, improvement, and learning in physical education. Ongoing investigations that explore these links during a TGM sport unit will help teachers and researchers better understand the following process:

> A tactical games approach foregrounds students with the underlying goal of appealing to their interest in games playing so that they value (e.g., appreciate) the need to work toward improved game performance. Improving game performance we hope will lead to greater enjoyment, interest, and perceived competence to become lifelong learners. (Mitchell, Oslin, & Griffin, 2003, p. 166)

Situational interest motivation theory offers a way to examine student motivation to get involved in and stay involved in each learning situation (i.e., Game 1, Q&A, Practice, and Game 2).

According to Mitchell (1993), situational interest motivation is the real topic of concern in motivation research because teachers have no influence over a student's incoming personal interests. Situational interest is defined as a type of interest motivation related to a positive experience that occurs during a specific activity or within a specific environment (Chen, Darst, & Pangrazi, 1999; Deci, 1992; Mitchell, 1993). Recently, situational interest has been used in studies examining motivation in physical education (Chen, Darst, & Pangrazi, 1999; Chen & Darst, 2001; Shen & Chen, 2006) and TGM advocates (Griffin, Brooker, & Patton, 2005) identified situational interest as a valuable theoretical framework for future investigations of motivation during TGM units. The unique conditions/learning situations and the learner-centered environment created by TGM seem to be a good match for the person-activity/environment interaction

required by situational interest motivation theory. For application to TGM research, I propose that situational interest within a TGM lesson can be viewed as a student-TGM learning situation experience (e.g., participant-games playing experience).

Describing student situational interest within the different TGM learning situations will provide a clearer picture of the larger student TGM sport experience. For instance, Mitchell (1993) found that there were "catch" and "hold" phases of situational interest motivation during his study in mathematics. Consideration of phases of situational interest offers a way for teachers and researchers to deconstruct student motivation to get involved and motivation to stay involved in each task/TGM learning situation (Game 1, Q & A, Situated Practice, and Game 2) instead of judging student motivation during an entire lesson.

Situational interest findings have shown that: (a) enhancing the cognitive demand of tasks (Chen & Darst, 2001) and (b) offering opportunities for students to connect with other students (Wilson, 1994) were positive strategies to "catch" a student's situational interest. Both cognitive demand (e.g., critical thinking about solutions to tactical problems) and social construction of learning (e.g., learning in small teams) are key characteristics of TGM. Other interesting findings include: (a) helping students' set goals for their learning (Wilson, 1994) and (b) increasing student involvement and the meaningfulness of tasks (Mitchell, 1993) were identified as ways to "hold" a student's situational interest motivation during a learning task/situation. Furthermore, Mitchell stated that classes will better hold student situational interest when: "Students perceive themselves as active learners rather than as passive absorbers of knowledge" (1993, p. 433). TGM's focus on maximizing student involvement through modified small-sided

games and helping students think critically about how skills, movements, and decisions can improve games playing aligns with situational interest themes related to involvement and meaningful connection within tasks/situations.

Purpose of Study

The purpose of this five week qualitative study was to examine student motivation during a Tactical Games Model (TGM) sport unit. Grounded theory, case study, and action research approaches influenced study design and situational interest motivation provided a theoretical framework for interpreting student motivation within the TGM sequence of learning situations (Game 1, Q & A, Practice, and Game 2). Broad study goals included: (a) provide an in-depth examination of student motivation during a TGM sport experience, (b) develop a visual model to describe factors influencing motivation to get involved and motivation to stay involved in TGM learning situations, (c) explore the potential links between motivation, improvement, and learning during a TGM sport unit, and (d) propose a 'meaningful guide for action' for teachers interested in using TGM to teach sport in physical education.

Research Questions

The following research questions guided this investigation of student motivation during a TGM unit:

1. How do the conditions/learning situations created by TGM (Game 1, Q&A, Practice, and Game 2) influence student motivation?

2. To what extent are students motivated to improve their skills, decision-making, and support during a TGM invasion games unit?

3. To what extent are students motivated to improve their games playing during a TGM invasion games unit?

Significance of Study

Findings from this Tactical Games Model (TGM) study are significant for four reasons. First, details about both teacher implementation of and student experiences during a TGM sport unit will help preservice and inservice teachers better understand the unique teaching and learning process that occurs when using TGM. Howarth (2005) stated: "One of the greatest challenges for teacher education is helping preservice teachers connect educational theories and ideals to the challenges they will face in the classroom" (p. 91). More cases of successful teacher planning and implementation of TGM and student reports about their experiences within a TGM unit will be an asset for both Physical Education Teacher Education (PETE) programs and district professional development workshops/courses advocating use of instructional models and constructivist approaches.

Second, more data is needed to support the potential benefits and expected outcomes linked to TGM sport units. Findings that explain: (a) student enjoyment, (b) interest motivation, and (c) perceived competence will strengthen the TGM literature. Identification of instructional models that increase motivation and learning may reinvigorate physical education teachers struggling to combat varying levels of student interest and shrinking participation rates. Also, little is known about the student experience within constructivist approaches (e.g., TGM) to teaching and learning sport in physical education (Griffin, Brooker, Patton, 2005; Rink, 1996, 2001).

Third, one of the recommendations for future TGM studies includes the use of theoretical frames to better explain types of student motivation and the overall TGM sport experience. This study incorporates situational interest motivation theory to frame

and interpret student motivation during TGM learning situations (i.e., Game 1, Q & A, Practice, & Game 2). Instead of a generic overview of student motivation, situational interest provides a specific structure for identifying and understanding the important factors that influence student interest motivation to get involved and stay involved in a specific TGM learning situation (e.g., small-sided game situation). Both TGM advocates and critics call for a shift away from comparison 'versus' studies toward comprehensive studies that are grounded in theoretical frames and detail the teaching and learning process associated with a specific instructional approach/model. The strengths and limitations identified in this study offer insights for future motivation research in physical education.

Fourth, many experts state that motivation influences the learning process (Chen, 2001; Chen & Ennis, 2004; Hidi & Harackiewicz, 2000; Rink, 2001) but few studies have attempted to link types of motivation with improvement and learning in physical education. Exploring the potential links between motivation and improvement within TGM will be valuable to physical education and TGM literature since interest motivation, perceived competence, and improved games playing are all expected outcomes. Finally, TGM has the potential to create what Hidi, Renninger, and Krapp (2004) referred to as the conditions and environment needed to support motivated and successful learners.

CHAPTER 2

REVIEW OF LITERATURE

The purpose of this review of literature is to: (a) advocate for teacher use of the Tactical Games Model (TGM) to teach sport, (b) introduce situational interest theory as a way to study student motivation during the constructivist conditions created by the TGM sequence (Game 1, Q & A, Practice, and Game 2), and (c) recommend a plan of action for deconstructing student TGM sport experiences in physical education. First, TGM has been identified as an instructional model that can increase student motivation and make sport experiences more meaningful in physical education (Griffin, Mitchell, & Oslin, 1997; Mitchell, Oslin, & Griffin, 2006). Unfortunately, many physical education teachers remain unaware of TGM or choose not to incorporate TGM into their sport pedagogy. Positive practitioner accounts and a growing set of empirical findings warrant increased use of TGM in physical education. Most of the TGM empirical findings have focused on changes in game performance measures (e.g., skill execution, decision-making) within comparison 'versus' studies. Limited data is available to explain student outcomes related to the affective domain (e.g., motivation, enjoyment).

Second, TGM studies that incorporate theoretical frameworks (e.g., situational interest motivation) are needed to interpret student motivation to get involved and learn during the different TGM learning experiences (Game 1, Q & A, Practice, and Game 2). TGM advocates and critics agree that constructivist approaches hold promise in physical education but more research is needed to better understand the constructivist nature of TGM. Also known as a constructivist approach to teaching and learning sport, TGM encourages learners to build knowledge and gain experiences both individually and

socially with their team during TGM sport units. Examining how the constructivist conditions/unique learning situations created by TGM influence student motivation and enhance learning within the model is an important investment for the field of physical education (Griffin & Patton, 2005; Rink, 1996, 2001).

Finally, a majority of the empirical findings focus on a part or parts of a TGM sport experience in comparison with other approaches instead of offering theory about the constructivist TGM sport experience. A comprehensive picture of student TGM sport experiences is needed to realize the unique characteristics of TGM as an instructional model + constructivist approach to teach and learn sport. Studies that: (a) establish student motivational profiles (e.g., goals, personal interest, (b) examine the motivational influence of constructivist conditions within TGM lessons (e.g., situational interest), (c) consider the development of perceived competence (e.g., self-perceptions of competence), (d) assess important aspects of games playing (e.g., decision-making, skill execution, support), and (e) evaluate overall games playing will be an asset to the TGM literature.

Using the Tactical Games Model (TGM) to Teach Sport

If implemented faithfully, the expected student outcomes during a Tactical Games Model (TGM) sport unit include: (a) increased student motivation, (b) improved student decision-making, and (c) better student game performance (Griffin & Patton, 2005). Although not mainstream in physical education, teacher interest and experimentation with TGM is growing among preservice teachers learning about instructional models, innovative inservice teachers, and school districts seeking ways to improve sport in physical education. This section: (a) outlines empirical findings for student outcomes

during TGM units, (b) identifies criteria for a reasonable version of TGM, and (c) makes connections between TGM and best practice in teaching and learning in education.

At present time the Tactical Games Model (TGM) literature includes cases of teacher implementation of TGM and empirical findings for game performance measures (e.g., skill execution, decision-making). Positive teacher reports describe TGM as a way to: (a) increase student participation in physical education sport units and (b) improve overall games playing (Berkowitz, 1996; Mitchell, Griffin, & Oslin, 1997). Respectively, some teachers being introduced to TGM have requested more evidence to support a major shift in their practice (Butler, 1996).

Empirical Findings for the Tactical Games Model (TGM)

Although a newer area of research in physical education, there is a growing set of Tactical Games Model (TGM) findings showing changes in participant: (a) game involvement, (b) skill execution, (c) decision-making, (d) strategy, (e) enjoyment, and (f) tactical knowledge during TGM sport units. Few studies have presented findings to explain changes in participant motivation or detail learning in the affective domain (Holt, Strean, & Garcia, 2002) during TGM sport experiences.

The TGM literature includes the following types of studies: (a) action research studies, (b) comparison studies between tactical and skill approaches, (c) information processing studies, and (d) situated learning studies. Action research studies focus primarily on preservice (Gubacs, 2000) and inservice teacher experiences learning about TGM implementation (Almond, 1986; Butler, 1996). Findings from TGM action research studies include: (a) teachers who chose to use TGM became more reflective of their teaching, students, and games (Almond, 1986; Butler, 1996; Gubacs, 2000), (b)

teachers' perceived positive student outcomes during a TGM unit (Butler, 1996), and (c) teachers provided suggestions for peers and other teachers willing to try TGM (Butler, 1996). Although less visible in the TGM literature, action research studies represent a valued approach to describing the TGM planning and teaching process and investigating teacher experiences using TGM. Comparison studies and studies grounded in theoretical frames offer a window into student outcomes during a TGM sport unit.

Comparison Studies

Comparison studies, commonly referred to as the 'versus' studies, dominated the earlier Tactical Games Model (TGM) literature and provided the bulk of findings for changes in individual participant outcomes during a tactical approach (e.g., skill execution, decision-making). During their review of games-teaching literature (e.g., Teaching Games for Understanding, Tactical Games Model, Game Sense), Oslin and Mitchell (2006) warned that consumers of TGM literature must note that some studies assessed skill execution within a game context (e.g., Mitchell, Oslin, & Griffin, 1995) and other studies included measures of skill performance outside of a game context (e.g., French, Werner, Rink, Taylor, & Hussey, 1996). Learning and improving through games playing experiences is a key theme for TGM sport units.

A majority of the studies cited in the TGM literature were conducted between 1989 and 1999 and compared outcomes from a tactical sport unit with outcomes from a technical skill-based sport unit. This 10 year period of research contributed a great deal to the TGM literature but most researchers agree that comparison studies fell short of explaining student experiences and helping the physical education community better understand the constructivist nature of TGM. I will use the terms tactical group (e.g.,

TGM) and technical group (skill-based approach) to describe the experimental groups as a way to remain consistent in my writing. Hastie (2003) describes the technical skill-based approach using the following characteristics: (a) teacher explanation, (b) teacher demonstrations, (c) teacher led drills focusing on basic skills, and (d) full game play.

Nine studies were selected to provide examples of student outcomes from early comparison studies: 1) Mitchell, Oslin, and Griffin (1995), 2) French, Werner, Rink, Taylor, and Hussey (1996), 3) French, Werner, Taylor, Hussey, and Jones (1996), 4) Graham, Ellis, Williams, Kwak, and Werner (1996), 5) Tjeerdsma, Rink, and Graham (1996), 6) Turner (1996), 7) Allison and Thorpe (1997), 8) Mitchell, Griffin, and Oslin (1997), and 9) Turner and Martinek (1999). Sport units introduced to participants during this set of comparison studies were invasion game (i.e., basketball, hockey, and soccer) and net/wall game (i.e., badminton) units. Most participants were middle school and early high school students. Common methods for data collection included pretest and posttests using: (a) skill tests to determine skill improvement, (b) paper and pencil tests to determine changes in knowledge, and/or (c) variations of game performance assessments (e.g., GPAI).

Findings from these studies focused on changes in one or more of the following TGM expected outcomes: (a) game involvement, (b) skill execution, (c) decision making, (d) movement selection, (e) declarative knowledge, (f) strategy/procedural knowledge, and (g) enjoyment. Similarities and differences in participant skill execution and decision-making scores between tactical and technical groups were the main focus of results and discussion. While many similarities were discussed for improvements made by both tactical and technical groups, some studies provided differences that show

significant improvements in skill-execution made by participants in a tactical group (Allison & Thorpe, 1997; Mitchell, Oslin, & Griffin, 1995; Turner & Martinek, 1999). Most comparison studies aimed to test the technical and tactical philosophies about learning and improving skills and decision-making during a sport unit.

Skill Execution during a Net/Wall Games Unit

A manuscript titled, *Tactical and Skill Approaches to Teaching Sport and Games* (Rink, 1996) was published in The Journal of Teaching in Physical Education. Three badminton studies were summarized to compare the skill execution of participants in a technical group with students in a tactical group during a badminton unit. One of the main badminton studies (French, Werner, Rink, Taylor, & Hussey, 1996) found that participants in both the tactical and technical groups in badminton were significantly similar in the skill execution of forceful shots, cooperative shots, and serves.

French, Werner, Rink, Taylor, & Hussey (1996) identified several areas where students in the technical group outperformed the tactical group. Specifically, they found that the students in the technical group made advancements in their percentages of forceful shots and cooperative shots at the midpoint and end of the 30 lesson badminton unit. They also explained that the tactical group achieved adequate levels of skill execution performance without formal skill instruction. Skill test scores for the clear and the serve were similar to mid intermediate and near advanced ranges for both the technical and tactical group at the end of the six weeks. Additional skill execution findings were presented for technical and tactical groups during invasion games units.

Skill Execution during an Invasion Games Unit

Like investigations during net/wall game units, many of the invasion game comparison studies showed that both technical and tactical groups were improving during sport units. Results from a series of invasion games studies revealed that there were few significant differences in skill execution when comparing improvements made by technical and tactical groups. For example, findings from Turner's (1996) 15 lesson field hockey unit and Mitchell, Oslin, and Griffin's (1995) eight lesson soccer unit showed that there were no significant differences between the tactical and technical groups for most skill execution measures during their.

While both groups improved on skill execution measures, a few studies identified instances of better skill execution by a tactical group. For example, Turner and Martinek explained that the participants in the tactical group scored significantly higher on ball control and passing execution than the technical skill group during the posttest field hockey game. Even though there are results showing an advantage for technical or tactical groups, comparison studies consistently showed that tactical and technical groups improved their skill execution during sport units.

These skill execution findings support TGM's approach that students can learn and improve skill execution through games playing. Allison and Thorpe (1997) stated that participants in a tactical group performed as well and better on basketball (e.g., shooting) and hockey (e.g., speed) skill tests. Comparison studies also examined differences in decision-making during net/wall and invasion games units.

Decision-Making during a Net Games Unit

Tactical and technical groups made improvements in their decision-making during a series of badminton studies. For example, French, Werner, Taylor, Hussey, and

Jones (1996) reported that the technical group performed as well as the tactical group in areas of decision-making. They hypothesized that one reason why the technical group did as well in the area of decision-making during the badminton unit was because they may have acquired some aspects of decision making during game play.

Decision-Making during an Invasion Games Unit

Similar to net games results, a majority of the invasion games studies showed that both tactical and technical groups made improvements in their decision-making. Mitchell, Oslin, and Griffin (1995) reported that there were no significant differences between tactical and technical groups in decision-making results in their soccer unit. Similarly, Turner and Martinek (1999) stated that there were no significant differences for decision making in dribbling and shooting between approaches. Unlike the badminton studies, several examples of improved decision-making by the tactical group were provided in the field hockey studies.

Turner (1996) and Turner and Martinek (1999) found limited improvements for the tactical group's decision making (e.g., passing decisions) during field hockey units. Turner found that the middle school tactical group improved their decision making only for passing and tackling during a 16 lesson field hockey. Also, Turner and Martinek explained that students in a tactical field hockey class made better passing decisions than those students in a field hockey class taught using a skill approach

Results from tactical versus technical studies showed that a tactical group was able to learn and improve skill through game-like situations instead of drills and a technical group improved their decision-making after experiencing games playing. While these results add to the literature, few comparison studies considered that Tactical

Games Model (TGM) aims to help students become better games players. Specifically, improving skill execution and better decision-making are parts of a comprehensive TGM sport unit. For instance, movement without the ball is considered as important as on-the-ball skills within a TGM invasion games sport unit but few comparison studies included changes in participant off-the-ball movement (e.g., support during invasion games sport unit) as a student outcome.

Support/Off-the-Ball Movement during an Invasion Games Unit

Appropriate selection of off-the-ball movements to support teammates is an important offensive concept during a Tactical Games Model (TGM) invasion games sport unit. Using the Game Performance Assessment Instrument (GPAI), Mitchell, Oslin, and Griffin assessed changes in support/off-the-ball movement for the tactical and technical groups experiencing a soccer unit. They found that participants in the tactical group demonstrated better off-the-ball movement during the eight lesson soccer unit.

Most of the comparison studies neglected to assess and report on participant off-the-ball movements. In addition, increased game involvement is another expected outcome when students experience a TGM sport unit. Some findings are available to show changes in game involvement for a tactical group.

Game Involvement during an Invasion Games Unit

Involving all students in modified games playing learning experiences is a major goal for Tactical Games Model (TGM) lessons/units. Few studies have examined participant game involvement during a TGM sport unit (Allison & Thorpe, 1997; Mitchell, Oslin, & Griffin, 1995). During their soccer study, Mitchell, Oslin, and Griffin found that sixth grade participants experiencing a tactical approach demonstrated

increased game involvement when compared to participants experiencing a technical sport unit.

In addition to participant outcomes, Allison and Thorpe (1997) found that teachers in their study perceived better participant involvement during TGM invasion games units (i.e., basketball, hockey) compared to the same units (i.e., basketball, hockey) designed and implemented using a technical approach to teaching sport. They also wrote that the eighth and ninth grade participants explained that they believed that they were more involved during the TGM lessons. Gathering data about participant experiences helps explain outcomes related to enjoyment, strategy, and knowledge construction during a TGM unit.

Enjoyment, Strategy, and Tactical Knowledge

Additional findings support TGM's expected outcomes that using the model will: (a) boost enjoyment, (b) improve strategy, and (c) increase knowledge during a sport unit. These findings included participants in a tactical group: (a) enjoyed game-related activities during invasion game and net units (Graham, Ellis, Williams, Kwak, & Werner, 1996; Turner, 1996), (b) frequently said their abilities to use strategies improved (Tjeerdsma, Rink, & Graham, 1996), and (c) improved tactical knowledge (Mitchell, Griffin, & Oslin, 1997). More investigations are needed to better comprehend changes in enjoyment and use of strategy. Building tactical knowledge and tactical awareness are two areas that require more empirical findings.

At present time, researchers are shifting from comparison studies toward: (a) studies that focus on TGM as a way to improve overall game performance (Harvey, 2007) and (b) research designs that employ theoretical frames as a way to investigate

knowledge construction within the TGM sport experience. Information processing and situated leaning studies are examples of newer TGM research designs that aim to better explain TGM's impact on knowledge construction during a sport unit.

Information Processing Studies

Information processing theory is being used to examine how individuals process information and explain the limitations related to processing important information (Horn, 2004). Griffin and Placek (2001) state that teachers need to better understand students' declarative (facts) and procedural (process) knowledge when they enter class. One of TGM's main goals is for students to develop tactical awareness or 'know what to do" in game situations but few studies are available to describe the process of using knowledge within TGM. According to MacDonald (2004), information processing theory focuses on a learner's selection, organization, and integration of new knowledge and experiences with existing knowledge and past experiences.

Several studies provided results for elementary and middle school students learning about and applying tactical knowledge. For example, two information processing studies (Griffin, Dodds, Placek, & Tremino, 2001; Nevett, Rovegno, Babiarz, & McCaughtry, 2001) investigated how students used declarative and procedural knowledge to solve tactical problems. While this review does not provide an exhaustive review of information processing, there are findings that reflect the work being conducted in the area of knowledge development within TGM sport units. First, sixth graders provided a wide range of solutions (tactically sound, tactically feasible, or tactically convoluted) when asked to explain how they would respond to games playing scenarios in soccer (Griffin, Dodds, Placek, & Tremino, 2001). Second, sixth graders were better

at solving tactical problems for offensive scenarios (i.e. attacking the goal) compared to defensive scenarios (i.e. defending space) during a soccer unit (Griffin, Dodds, Placek, & Tremino, 2001). Third, fourth graders improved their passing decisions and cutting actions (Nevett, Rovegno, Babiarz, & McCaughtry, 2001) between pretest and posttest during a basketball unit that focused on simple tactics. Fourth, fourth graders were able to send more catchable passes to their teammates during the posttest game (Nevett, Rovegno, Babiarz, & McCaughtry, 2001).

Using an information processing framework offers a step by step system for TGM investigations to interpret declarative and procedural knowledge. This framework can be extended to include domain-specific knowledge (DSK) as a way to differentiate between expert and novice players. Adding DSK would include methods that ask participants to explain their procedural knowledge/decision making process by responding to "if … then …" scenarios. In addition to investigations into student knowledge development and application during a TGM sport experience, several researchers have applied a situated learning perspective to explain dimensions of student learning during a TGM sport unit.

Situated Learning Studies

Situated learning researchers argue that schools address issues of learning by assuming that: (a) learning is an individual process that has a beginning and an end, (b) learning is separated from our other activities, and (c) learning is the result of teaching (Wenger, 1998, p. 3). Therefore, a situated learning perspective aims to explore learning with others and learning during unique tasks/conditions making it applicable to studying the constructivist nature of TGM (Kirk & MacDonald, 1998). Also, Griffin, Brooker, and Patton (2005) argue that: "[TGM] provides a structure for situated learning to occur

within a community of practice, based in meaningful, purposeful and authentic tasks presented and practiced by students" (p 219).

The terms situated learning and situated activity assumes that a person's comprehensive understanding depends on the "situatedness" of learning activities (Lave & Wenger, 1991, 31). Griffin, Brooker, and Patton (2005) explained that: "Individuals are viewed as part of the whole, not acting or participating in isolation" when researchers use the situated learning perspective (p. 220). TGM practice experiences are situated in game-like tasks and events that help students connect their practice to games playing experiences.

Several TGM studies have modeled the inclusion of a situated learning frame to investigate dimensions of learning and the complexities of student learning (Kirk, Brooker, & Braiuka, 2000; Kirk, MacPhail, & Griffin, 2005; Rovegno, Nevett, Brock, & Babiarz, 2001). Two studies were selected to show how situated learning is being used in TGM research. Both studies examined relational aspects of skill execution during game-like play.

In their study of fourth graders during a basketball unit, Rovegno, Nevett, Brock, and Babiarz (2001) examined the relations between partners (passer and receiver) and the goals of the task that defined the meaning of the skills of throwing and catching in game-like play. Major findings from their study include: (a) immature performance for passing was not isolated to individuals but the relation between passer and receiver and (b) immature performance for cutting was in relation to defenders. Examples of relational problems between passer and receiver included throwing too hard, throwing too far, holding ball too long, and sending passer too soon. Immature patterns of standing or

jumping were in relation to defenders and sometimes resulted in immature passing patterns.

Similarly, Kirk, MacPhail, and Griffin (2005) investigated both the physical-perceptual dimension and the social interactive dimensions within TGM communities of practice. They found that passing was relational for elementary students and some improvements in students' throwing catchable passes were recorded during their study. Kirk, et al. also reported that: (a) student perception of cues was a relational skill because students were regularly observed holding onto the ball too long and losing possession, (b) offensive game play performance measures improved, and (c) defensive game play performance measures decreased for marking and guarding.

Ongoing work in the area of situated learning and legitimate peripheral participation (Kirk & MacPhail, 2002) proposes that knowledge about how students' understand games and how students' learn to play games. The goal is to help teachers design better learning experiences in physical education.

Summary of Empirical Findings

Teacher goals for student improvement and learning will help them choose which approach will help them achieve these goals. Findings showed that both technical and tactical approaches helped students develop and improve skill as well as support student decision-making. Teachers seeking ways to increase student: (a) involvement, (b) thinking and strategizing, (c) off-the-ball movement, (d) enjoyment, and (e) games playing during a sport unit should consider a tactical approach (e.g., TGM). Overall, findings from the comparative tactical versus technical approaches realized that: (a) TGM is an effective way to plan and teach sport in physical education and (b) comparative

studies fall short of appreciating the unique characteristics of TGM as an instructional model and a constructivist approach to teaching and learning sport. Recent studies have examined knowledge construction during TGM games playing situations (e.g., Griffin, Dodds, Placek, & Tremino, 2001) and provided examples of overall student game performance during a TGM unit (e.g., Harvey, 2007).

The appealing outcomes for increased student participation and involvement presented by practitioners plus findings that show aspects of improved games playing and knowledge construction during a TGM sport unit have led to the inclusion of TGM in many Physical Education Teacher Education (PETE) Programs. Also, there has been an increase in the visibility of both practical and research-based TGM presentations at professional conferences (Griffin, Brooker, & Patton, 2005). Inservice teacher use of TGM out in the schools appears to be sporadic and depends on whether or not a teacher is willing to learn about a new way to teach physical education. Pajares (1992) reminds us that: "Beliefs are unlikely to be replaced unless they prove unsatisfactory, and they are unlikely to prove unsatisfactory unless they are challenged" (p. 321).

Continued evidence that TGM achieves the expected student outcomes (e.g., increased student motivation, better games playing) and examples of successful implementation will strengthen the case that all teachers should be experimenting with TGM during sport units. While experimentation is a positive first step for inservice teachers, criteria is needed to help researchers determine whether or not a reasonable version of TGM is being implemented out in the schools and during studies. In order to support TGM literature, findings related to expected student outcomes must be linked to faithful implementation of TGM (Metzler, 2005; Oslin & Mitchell, 2006). Also,

examples of TGM implementation will also help combat misconceptions that the Tactical Games Model (TGM) 'is just playing games' (Mitchell, Oslin, & Griffin, 2006) and strengthen the TGM literature on both teacher implementation and student outcomes during a TGM sport unit.

A Reasonable Version of the Tactical Games Model (TGM)

Unlike selecting teaching styles (Mosston & Ashworth, 1994) for and practicing effective teaching behaviors (Rink, 2003) during individual lessons, instructional models represent "blueprints" (Metzler, 2005) for designing and teaching comprehensive physical education units (e.g., sport, dance, cooperative/adventure, fitness, lifetime activities). In the recent edition of, *Instructional Models for Physical Education,* Metzler introduced eight instructional models. These models include: (a) Direct Instruction Model, (b) Personalized System of Instruction (PSI), (c) Cooperative Learning, (d) Sport Education Model (SEM), (e) Peer Teaching, (f) Inquiry Teaching, (g) Tactical Games (TGM), and (h) Teaching for Personal and Social Responsibility (TPSR). There are several models (e.g., Tactical Games, Sport Education, and Direct Instruction) being used to design and teach sport units in K-12 physical education. While arguments can be made for each of these models, TGM stands out because it represents both a comprehensive instructional model and a constructivist approach to teaching and learning sport.

Although not a mainstream approach to teaching sport in physical education, TGM is recognized by many as a better way to design and teach sport units. For example, Griffin, Dodds, and Rovegno (1996) identified TGM as a way for teachers to demonstrate Pedagogical Content Knowledge (PCK, Shulman, 1986) for sport in physical

education. PCK reflects an advanced level of teacher knowledge and skill needed to: (a) make subject matter developmentally appropriate for different grade levels, (b) recognize student conceptions and address misconceptions within subject matter topics, (c) use curriculum and comprehend vertical (grade level) and horizontal (K-12) curricula for a subject, and (d) access a repertoire of instructional strategies to teach subject matter (Grossman, 1990; Shulman, 1986). Specifically, Griffin, Dodds, and Rovegno believe that: "[Using TGM] conceptualizes the purpose of teaching games, offers a curricular knowledge base, provides instructional strategies, and proposes levels of students' knowledge to create more powerful PCK" (p. 58). In order for teachers and students to achieve the benefits of TGM, a reasonable version of TGM must be implemented during the sport unit. This paper suggests that a reasonable version of TGM should: (a) reflect the central themes that shape TGM planning and instruction and (b) document faithful implementation of TGM in physical education.

Themes Central to the Tactical Games Model (TGM)

Each instructional model has unique characteristics and themes that shape how the teacher presents subject matter. The following themes are central to the TGM philosophy: (a) sport and games are important learning experiences, (b) games can be modified and conditioned, (c) knowledge about tactical problems can be transferred between sports in the same games category (e.g., invasion games), and (d) authentic assessment should be used to assess changes in game performance.

Sport and Games Are Important Learning Experiences

The Tactical Games Model (TGM) is built on the belief that sport and games are vital movement experiences that contribute to a well-rounded physical education

curriculum. When done well sport and games offer numerous benefits to students in physical education. These benefits are tied to opportunities to apply physical skills and movement (psychomotor domain), to become involved in decision-making and problem solving during class, and to experience the dynamics of communication within groups and teamwork (affective domain) in games playing experiences. The following paragraphs will provide more details about what teaching games in physical education looks like when a teacher uses TGM.

Games Should Be Modified and Conditioned

Sport-related games can and should be modified to represent the advanced or expert game form. For example, small-sided games are introduced during TGM lessons to make games playable and maximize participation and overall involvement in experiencing game play. According to Mitchell and Griffin (1994) and Hopper (2002), a game must be playable and playing conditions should be exaggerated in order to help students develop tactical awareness. Mitchell, Oslin, and Griffin (2006) define tactical awareness as: "The ability to identify tactical problems that arise during a game and to respond appropriately." (p. 8). A proper response might be: (a) execution of an on-the-ball skill (e.g., passing, shooting), (b) decision about which teammate to pass to in order to maintain possession, and (c) selection of an off-the-ball movement to support a teammate during games playing.

Teachers can exaggerate game situations or change game conditions by: (a) changing the original rules to make the game easier or harder to play, (b) adding or removing types of equipment, increasing or decreasing playing area, and/or (c) adjust the system of scoring to improve student awareness of the tactical problems (e.g., hitting to

open space in striking and fielding games) occurring in games. Experiencing all aspects of games will help students become better thinkers during games playing situations.

Knowledge Can Be Transferred Between Similar Sports

A games classification system (Thorpe, Bunker, & Almond, 1986) was developed to reorganize how teachers plan and introduce sport subject matter in physical education. Four game categories exist within the games classification system: 1) invasion/territory games (e.g., soccer, basketball, ultimate), 2) net/wall games (e.g., volleyball, badminton, tennis), 3) striking & fielding (e.g., baseball, softball, cricket) and 4) target games (e.g., bowling, archery, golf) (Mitchell, Oslin, & Griffin, 2003). Unlike the multi-activity structure that lists the sports to be taught, the goal of using the games categories is to help teachers and students recognize the potential for transfer of knowledge during similar sport experiences throughout the school year.

The goal for all invasion games is to invade the opponents' defending area to score a goal while simultaneously protecting your own goal. Also, the invasion games structure allows for teachers to identify similarities between offensive and defensive concepts/tactics that apply across a variety of invasion games. For example, offensive concepts include maintaining possession and attacking the goal while defensive tactics relate to a zone defense or marking a specific player.

Authentic Assessment Must be Used to Assess Games Playing

TGM teachers plan and teach lessons that offer a variety of game-like experiences to help students become better games players. Griffin and Patton state that as students gain experience: "they become better decision-makers and more competent games

players …" (2005, p. 1). This claim can be explored using authentic assessments to collect data on changes in student game performance (Oslin, 2005).

Authentic assessments are used to measure: "Real world application of knowledge or skills" (Darst & Pangrazi, 2006, p. 226). The Games Performance Assessment Instrument (GPAI) and the Team Sport Assessment Procedure (TSAP) are two notable tools being used to measure student game performance during TGM lessons/units. Oslin, Mitchell, and Griffin (1988) created the Game Performance Assessment Instrument (GPAI) to help teachers observe and measure student performance (e.g., making decisions, moving appropriately, executing skills) during games.

GPAI performance measures include: (a) Game Involvement, (b) Decision-Making Index (DMI), (c) Skill Execution Index (SEI), (d) Support Index (SI), and (e) Game Performance for invasion games units. The *Teaching Sport Concepts and Skills: A Tactical Approach* book authored by Mitchell, Oslin, and Griffin (2006) outlines the formulas for calculating each of the game performance measures for the GPAI. For example, a teacher looking to calculate student decision-making or DMI performance during a TGM lesson/unit would use the following GPAI equation using data collected during teacher systematic observation:

> Decision-Making Index (DMI) = number of appropriate decisions made / (number of inappropriate decisions made + number of inappropriate decisions made). (Mitchell, Oslin, & Griffin, 2006, p. 500)

GPAI encourages teachers to view games as complex learning situations by identifying specific performance measures (e.g., skill execution) that teachers should define and look for during TGM lessons

The Team Sport Assessment Procedure (TSAP) by Grehaigne, Godbout, and Bouthier (1997) is another instrument proposed for assessing student outcomes during game play. TSAP has been introduced as a team sports performance assessment that could be integrated into TGM lessons/units. TSAP is based on variables related to: (a) how a player gains possession of the ball and (b) how a player disposes of the ball. Both the GPAI and TSAP offer authentic assessment procedures that assist teachers in measuring student learning in games and/or game situations during a TGM lesson or unit of study.

While TGM is viewed as a new way to design and teach sport in physical education, advocates recognize that adopting a comprehensive instructional model like TGM represents a major shift in practice for most teachers (Kirk, 2005; Metzler, 2005; Mitchell, Oslin, & Griffin, 2006). Even though change is difficult (Pajares, 1992), I feel that teacher experimentation with TGM is an important step for making sport experiences more meaningful within an achievement based physical education curriculum (Kelly & Melograno, 2004). TGM resources (Mitchell, Oslin, & Griffin, 2006) reinforce the central themes of the model, offer planning tools (e.g., sample lesson plans) to help teachers get started, and provide general recommendations to help teachers develop confidence while experimenting with TGM implementation.

Faithful Implementation of the Tactical Games Model (TGM)

Faithful implementation of the Tactical Games Model (TGM) should support the expected learning outcomes (e.g., improved games playing) for the model (Metzler, 2005). Therefore, efforts should be made by teachers and researchers to document planning and teaching to show that a reasonable version of TGM has been used during a

TGM sport unit. The immediate benefit of documenting planning and teaching is that preservice teachers and inservice teachers will have examples of faithful implementation of the Tactical Games Model (TGM) in physical education.

Taking steps to show faithful implementation will also: (a) challenge misconceptions that TGM equates to using modified games with little focus on practice and (b) eliminate questions about whether or not a TGM study should be included in the TGM literature (Oslin & Mitchell, 2006). For example, if a reasonable version of TGM is used, small-sided modified games are built into a purposeful sequence of learning situations (Game 1, Q & A, Practice, and Game 2) and skill practice is situated in game-like situations that help students transfer improved skills and movements to future games playing. Also, a tactical problem serves as the learning focus that permeates all aspects of the TGM sport lesson.

Common challenges must also be considered when expanding a study focus to include the planning process and materials. Frequent changes to original lesson plans and time restrictions for executing TGM's whole-part-whole (game-practice-game) sequence of learning situations are two challenges that need to be considered when determining a reasonable version of TGM. First, TGM teachers play an active role in tailoring each lesson to meet the needs of each class. Specifically, they adjust the lesson based on their ongoing observations and student responses to critical questions integrated into each lesson (Griffin & Sheehy, 2004). Second, time for actual physical education class remains a common challenge for most physical education teachers. Trying to balance and execute the TGM sequence of learning situations has been cited in the TGM literature (Carpenter, 2004; Mitchell, Oslin, & Griffin, 2003; Turner & Martinek, 1999).

Although not explicit in the literature, I suggest that the original TGM block plan, daily lesson plans, and teacher reflections are sufficient materials for documenting faithful implementation.

Metzler (2005) presents benchmarks for faithful implementation of TGM. An example of a benchmark for TGM planning includes: "Teacher uses a tactical problem as the organizing center for learning tasks" (Metzler, 2005, p. 422). Also, an example of a benchmark for TGM instruction includes: "Students are given time to think about deductive questions regarding the tactical problem" (Metzler, 2005, p. 423). If used faithfully, TGM's approach to planning and teaching mirrors best practice in teaching and learning in the field of education.

Tactical Games Model (TGM) as Best Practice in Teaching and Learning Sport

As a former middle school physical education teacher and administrator turned teacher educator, I have determined that the Tactical Games Model (TGM) aligns with best practice in teaching and learning (Zemelman, Daniels, & Hyde, 1998). My rationale for this conclusion is that if used properly, TGM: (a) achieves national standards for learning in physical education, (b) supports Quality Physical Education (QPE, NASPE, 2001), and (c) parallels best practice in teaching and learning in other subject matter areas in education. Each of these connections will be explored further in the following paragraphs.

TGM Achieves National Standards for Learning in Physical Education

The present data-driven culture in education reiterates that teaching for student learning is the main goal for schools. Like other subject matter areas, the National Association for Sport and Physical Education (NASPE, 2004) developed national

standards to communicate clear learning goals for physical education curriculum in K-12 schools. These broad content standards: (a) reinforce the important learning domains (i.e, psychomotor, cognitive, and affective domains) that guide daily lesson objectives, (b) present goals for regular physical activity, and (c) support a general appreciation for human movement. The Tactical Games Model (TGM) helps students progress toward each of the NASPE national standards.

One of the standards that some teachers struggle with is meeting NASPE Standard Two. Standard two focuses on the cognitive domain and states that a physically educated student: *Demonstrates understanding of movement concepts, principles, strategies, and tactics as they apply to the learning and performance of physical activities* (NASPE, 2004, p. 11). TGM's ongoing focus on student problem solving and critical thinking assists teachers in achieving their cognitive objectives for student learning (e.g., the students will determine the best option for teammate to pass to in order to maintain possession during a 5 vs. 5 Ultimate game) during sport lessons.

While the majority of physical education professionals are very familiar with both national and state standards (learning goals) for physical education, two challenges exist to achieving standards in K-12 physical education. First, teachers continue to rely on informal assessments (e.g., teacher observations, student verbal responses during class closure) as their main form of assessment. These informal assessments are valuable but lack the data needed to show improvement and learning in physical education. Second, grading systems are frequently based on participation, attitude, and behavior criteria with little focus on student improvement and learning related to standards. Sport is an example of an area of the physical education curriculum that sustains a 'Busy, Happy,

and Good' (BHG, Placek, 1983) expectation for student success during a unit. Placek (2001) stated that while no teacher wants "Bored, Hostile, and Grumpy" students, goals for learning are absent from the BHG expectation for students success. Finding ways to encourage BHG teachers to move toward a 'BHG plus learning' (Placek, 2001) expectation remains a hurdle for achieving a standards-based environment in physical education.

Teacher education programs and professional development courses/workshops are promoting instructional models as ways to establish high expectations for student involvement, improvement, and learning in physical education. According to Metzler (2005), instructional models represent the next level of instruction in physical education because each model considers: (a) learning theory, (b) learning goals, (c) context, (d) content, (e) classroom management, (f) teaching strategies, (g) verification of model implementation, and (h) assessment of student learning. Teachers who select the Tactical Games Model (TGM) will focus on achieving the following student outcomes: (a) improved student game involvement, (b) better student decision-making during game play, (c) improved skills and movements, (d) increased student motivation and enjoyment, and (e) better overall games playing/game performance (Griffin & Patton, 2005: Mitchell, Oslin, & Griffin, 2006).

Authentic forms of assessment are also required to determine changes in game performance during the unit. Table 2.1 lists the NASPE content standards and provides examples of how a Tactical Games Model (TGM) sport unit helps students meet each of the standards. In addition to setting standards for what students should know (content) and be able to do (performance), NASPE established guidelines for Quality Physical

Education (QPE, 2004) Programs that will help students meet and exceed each of the six standards. Teachers who implement a reasonable version of the Tactical Games Model (TGM) will routinely support the essential components of QPE.

Table 2.1: Examples of Meeting NASPE Standards during a TGM Sport Unit

Characteristic of a Physically Educated Student/Types of Learning that should occur in Physical Education	**Examples of Meeting NASPE Standards during a TGM Sport Unit**
Standard 1: Demonstrates competency in motor skills and movement patterns needed to perform a variety of physical activities.	✓ Ongoing focus on improved skill execution and movement during games playing
Standard 2: Demonstrates understanding of movement concepts, principles, strategies, and tactics as they apply to the learning and performance of physical activities.	✓ Ongoing focus on better decision-making and critical thinking during game-like situations
Standard 3: Participates regularly in physical activity.	✓ Large amount of time dedicated to learning through games playing each lesson
Standard 4: Achieves and maintains a health-enhancing level of physical fitness.	✓ Benefits of sport linked to health-related fitness components (e.g., cardio respiratory endurance, muscular endurance)
Standard 5: Exhibits responsible personal and social behavior that respects self and others in physical activity settings.	✓ Cooperative and competitive games playing allows for opportunities that support self-officiating and stress positive sporting behavior
Standard 6: Values physical activity for health, enjoyment, challenge, self-expression, and/or social interaction.	✓ Games playing experiences are small-sided to increase involvement and conditioned to help students achieve a level of success in order to recognize sport as a social avenue for physical education

Source:
Moving into the Future: National Standards for Physical Education (2004, 2nd Edition) by National Association for Sport and Physical Education

TGM Supports Quality Physical Education (QPE) Programs

Quality Physical Education (QPE) is viewed as the main goal for K-12 physical education programs (Darst & Pangrazi, 2006; Masurier & Corbin, 2006; Siedentop, 2007). The National Association for Sport and Physical Education (NASPE) communicates that: "A high-quality physical education program includes the following components: opportunity to learn, meaningful content, and appropriate instruction."

(2004, p. 5). Faithful implementation of the Tactical Games Model (TGM) aims to: (a) maximize student involvement through small-sided games (opportunity to learn), (b) connect skills, movement, and decision-making to games playing (meaningful content), and (c) combines theory, practice, and research to guide instruction (appropriate instruction).

Currently, many physical education teachers are working toward Quality Physical Education (QPE, NASPE, 2001) and taking steps to improve sport experiences at their school. For instance, they incorporate unique equipment (e.g., beach balls, trainer volleyballs), organize modified games with customized playing areas (e.g., extra courts/nets, blankets placed over nets), and introduce both popular (e.g., soccer, volleyball, basketball) and little known sports (e.g., pickleball, cricket, water polo) as avenues for lifelong physical activity. These steps toward QPE represent strategies being used to motivate students to participate in and stay involved during a sport unit. Unfortunately, not all sport units are planned well and key problems exist in regards to how sport experiences are presented to students in many upper elementary, middle, and high school physical education programs.

Sadly, many students are still assigned to gym classes where the teacher provides little to no instruction and employs practices deemed inappropriate for teaching physical education. Examples of inappropriate practices in sport units that still linger in weaker physical education programs include: (a) introducing mini-units for three or four days with low expectations for improved competence and learning key concepts, (b) repeating simple sport skill drills (e.g., basketball knockout, soccer relays dribbling through cones) year after year starting in upper elementary and continuing into high school electives, (c)

expecting average and lower skilled students to participate in large-sided games, and (d) accepting low skill levels and poor game play (Hastie, 2003; NASPE & MASSPEC, 2004). The result for most students' is a negative sport experience characterized by: (a) lack of interest, (b) low participation rates, and/or (c) limited success during games playing within a sport unit. Instructional models represent a powerful way for teachers to redesign physical education units based on theory, research, and practice (Griffin, Dodds, Rovegno, 1996; Metzler, 2005; Rovegno, 2003).

Finding ways to make subject matter (e.g., sport) meaningful for students in physical education is a core expectation for both QPE and TGM. When teachers select TGM as a their instructional approach for teaching sport, planning focuses on designing learning experiences that will help students become better games players. While discussing middle school physical education, Mohnsen (2003) stressed that students need to have active meaningful learning experiences that encourage problem solving, creating, and exploring. This focus aligns with TGM's focus on improving student decision-making, problem solving, and critical thinking during games playing experiences.

The goal for TGM teachers is to ensure positive games playing experiences during each sport lesson. Rink (2006) defines a learning experience as: "a set of instructional conditions and events that gives structure to student experiences and is related to a particular set of teacher objectives" (p. 10). She wrote that a good learning experience must meet the following criteria: (a) have the potential to improve the motor performance/activity skills of students, (b) provide maximal activity or practice time for all students at an appropriate level of ability, (c) are appropriate for the experiential level of all students, and (d) the learning experience should have the potential to integrate

psychomotor, affective, and cognitive educational goals whenever possible. Table 2.2 was created to show how TGM matches Rink's criteria of learning experiences in physical education.

Table 2.2: Using TGM to Provide a Positive Learning Experience

Rink's Criteria for a Learning Experience	TGM Learning Experiences
Have the potential to improve the motor performance/activity skills of students	✓ Games require different types of skill application
	✓ Practice focus on skill development and off-the-ball movements within game-like situations
Provide maximal activity or practice time for all students at an appropriate level of ability	✓ All games are small-sided to increase student involvement during games
	✓ Games are modified to meet teacher goals and student needs for improvement
Are appropriate for the experiential level of all students	✓ All students are asked to show what they know and can do during game opportunities.
Have the potential to integrate psychomotor, affective, and cognitive educational goals whenever possible	✓ Teacher sets-up small-sided games and practice tasks that maximize student thinking and moving
	✓ Good sporting behavior and personal responsibility are consistent expectations
Source: *Teaching Physical Education for Learning* (2006, p. 11-13) by Rink	

According to Metzler (2005), instructional models are the most innovative stage of instruction in physical education. He states: "We are early in the fifth stage of development in how we conceptualize instruction in physical education, taking us from method to models over the past 50-plus years" (p. 188). Instructional models expand on the spectrum of teaching styles (Mosston & Ashworth, 1994, 2002) and effective teaching. Table 2.3 shows how TGM expands on QPE Appropriate Instruction criterion.

QPE requires a qualified physical education specialist who is able to plan and teach subject matter (e.g., skill themes & movement concepts, fitness & wellness activities, individual, dual, & team sports) in ways that help all students learn and improve during physical education class. In addition to helping students achieve standards and supporting QPE, TGM reflects best practice in teaching and learning.

Table 2.3: Using TGM to Achieve Quality Physical Education (QPE)

Appropriate Instruction in QPE	Goals & Characteristics that Shape TGM Instruction
Full inclusion of all students	Heterogeneous teams and global focus that all students improve their games playing
Maximum practice opportunities for class activities	Practice is built into both games playing and situated (game-like) practice
Well-designed lessons that facilitate student learning	Planning includes TGM sequence of learning situations to help students problem solve ways to improve their games playing
Out of school assignments that support learning and practice	Expectation that thinking and practice continue beyond physical education class into other in-school and out-of school experiences
No physical activity for punishment	No physical activity for punishment!! Game play is viewed as an important way to help students enjoy sport and games during physical education and beyond
Uses regular assessment to monitor and reinforce student learning	GPAI focuses on authentic assessment of skill execution, movement (psychomotor) along with decision-making (cognitive)
Source: *Moving into the Future: National Standards for Physical Education* (2004, 2nd Edition) by National Association for Sport and Physical Education	

TGM Parallels Best Practice in Teaching and Learning in Education

Physical education continues to make advances in both instruction and assessment. Zemelman, Daniels, and Hyde (1998) explain that "best practice" refers to: "serious, thoughtful, informed, responsible, state-of-the-art teaching" (p. viii). As part of their work in education, Zemelman, Daniels, and Hyde identified common themes within expert recommendations for best practice in the fields of Reading, Mathematics, Science, Social Studies, Visual Arts, Music, Dance, and Theater. Based on these content specific recommendations, they devised broad recommendations for what teachers and schools *should do LESS of* … and *do MORE of* … to maximize student learning in schools (Zemelman, Daniels, & Hyde, 1998, p. 4-6). Even though Physical Education was not mentioned, table 2.4 outlines important connections between general recommendations for best practice in teaching and learning in schools and the characteristics of TGM.

Engaging in best practice should be the priority for all physical educators not just preservice teachers learning new ways to teach and innovative inservice teachers who

continue to learn about the teaching and learning process. Each teacher is responsible for not only supporting positive learning experiences, they must plan well and provide the best possible instruction in order to help students gain knowledge, improve skill and movement, and apply everything they know and can do in real-life situations.

Table 2.4: Broad Recommendations for Teaching and Learning that Align with TGM

Teachers should do LESS of …	**Characteristics of TGM**
LESS whole-class, teacher-directed instruction (e.g., lecturing)	**Constructivist approach** that emphasizes individual and team problem solving
LESS student passivity: sitting, listening, receiving, and absorbing information	Students are **involved in or pulled into Q & A sessions** that identify individual or team's needs
LESS presentational, one-way transmission of information from teacher to student	**Teacher becomes facilitator** who helps students experience, deconstruct, and improve game play
LESS prizing and rewarding of silence in the classroom	**Individual, team, & class involvement in all aspects of games, discussions, and practice is a priority**
LESS attempts by teachers to thinly "cover" large amounts of materials in every subject area	**TGM Games Classification System** considers transfer of knowledge across sports in same games category
LESS rote memorization of facts and details	TGM teachers introduce **game situations that require student problem solving**
Teachers should do MORE of …	**Characteristics of TGM**
MORE experiential, inductive, hands-on learning	**Learning through games** is major theme for TGM
MORE active learning in classroom, with the noise + movement of students doing, talking, collaborating	**Chaos theory** is proposed as a theoretical frame for studying TGM
MORE emphasis on higher-order thinking: learning a field's key concepts and principles	**TGM encourages student critical thinking** about selection of skills, movements, and decisions
MORE enacting and modeling of the principles of democracy in school	**Student voice and ideas are encouraged** during each TGM lesson
MORE cooperative, collaborative activity: classroom as an interdependent community	**Cooperative play, teamwork, and good sporting behavior** are stressed as important
MORE heterogeneous classrooms where individual needs are met through individualized activities	**Use of heterogeneous small-sided teams** to balance skill and gender
MORE reliance on teachers' descriptive evaluations of student growth, including observations, records, conference notes, & performance assessment rubrics	TGM focuses on **authentic assessment through use of the Game Performance Assessment Instrument (GPAI)**
Source: *Best Practice: New Standards for Teaching and Learning in America's Schools* (1998, p. 4-6) by Zemelman, Daniels, & Hyde	

One of the essential features of faithful implementation that is often overlooked is that the teacher and students enter into a constructivist process for teaching and learning sport. For teachers, knowing: (a) what to look for when observing student progress, (b)

when to ask questions that will help students reflect on an experience, and (c) how to create conditions that empower students to become involved in their learning are a few of the new roles that a teacher must accept when implementing TGM, an instructional model + constructivist approach to teaching and learning sport (Griffin & Patton, 2005; Griffin & Sheehy, 2004; Richard & Wallian, 2005). Also, if used properly, students become actively involved in their learning throughout the TGM unit by building knowledge and experience that they will apply to 'real-life' game situations. To emphasize this new view of teaching and learning sport in physical education, experts have described student learning within TGM's constructivist learning process as learning to think and move or more precisely becoming a "thinking mover" (Ennis, Griffin, & Rovegno, 2006) in physical education.

Advocates of TGM credit the constructivist nature of the model as the catalyst for increased motivation and enhanced learning (Griffin, Butler, Lombardo, & Nastasi, 2003; Griffin & Patton, 2005; Mitchell, Oslin, Griffin, 2006). TGM can potentially reshape sport experiences to increase learning and help teachers' combat negative sport experiences associated with low motivation: (a) lack of interest, (b) low participation rates, and/or (c) limited success during games playing within a sport unit. Limited findings are available to explain changes in student motivation and enhanced learning when students experience the constructivist nature of the TGM sport experience.

Studying Motivation within a Constructivist Approach

Constructivism is a learning theory that focuses on a learner's individual and social construction of knowledge and the meaning the learner makes during this process

(Hein, 1991). McCombs & Whisler (1997) offer the following view of constructivist learning:

> Learning is a constructive process that occurs best when what is being learned is relevant and meaningful to the learner and when the learner is actively engaged in creating his or her own knowledge and understanding by connecting what is being learned with prior knowledge and experience (pg 10).

The Tactical Games Model (TGM) challenges students to build knowledge and gain experience as a player and member of a team during games playing situations.

Constructivism offers an exciting new perspective for expanding the view of teaching and learning in physical education. At present time, constructivism remains a buzz word for many teachers and teacher educators. This section seeks to better understand constructivism by: (a) exploring constructivism in education, (b) conceptualizing the TGM sequence of learning situations, and (c) using situational interest motivation to deconstruct the TGM sequence.

Exploring Constructivism in Education

Jean Piaget, Lev Vygotsky, and John Dewey represent notable constructivist scholars in education who presented the earliest perspectives on constructivism (Airasian & Walsh, 1997). Piaget (Pass, 2004) is recognized for his viewpoint that knowledge construction is the result of an individual's biological development. In contrast, Vygotsky (Pass, 2004; Wertsch, 1985, 1998) is known for his views that individuals construct knowledge based on their social and cultural interactions.

Even though Piaget and Vygotsky had different viewpoints about the origin of knowledge construction, Pass (2004) communicates that both theorists supported student-inquiry and would agree that the teacher's role is to instruct and debrief and the students'

role was problem solving. Guiding students through learning experiences that encourage problem solving in small groups represents a major shift in physical education. The Tactical Games Model (TGM) creates small constructivist learning communities where teams practice and play together as a way to build knowledge and gain experience during each lesson. Also, the whole class is consistently asked to identify problems, discuss solutions, and improve game play. Ideally, students should be learning from and contributing to the learning of their classmates throughout a TGM unit.

Overall, the scholarly work by Lev Vygotsky and John Dewey formed the foundation for interpreting constructivism in this TGM study. Specifically, Vygotsky's (Pass, 2004; Wertsch, 1985, Wertsch, 1998) notion that individuals construct knowledge based on their social interactions is helpful in interpreting students learning on teams and with classmates within TGM units. His vision locates knowledge construction within an individual's social interactions with other students, class situations, and environmental conditions (Airasian & Walsh, 1997).

Dewey (1944) was included because of his focus on the influence of environmental conditions on student learning experiences. This matches nicely with the constructivist nature of TGM. Specifically, he stated: "Only by wrestling with the conditions of the problem at first hand, seeking and finding [her/] his own way out, does [she/] he think" (Dewey, 1944, p. 160). This statement captures the goal for learners during games playing experiences within the TGM sequence of learning situations.

Lemlech (2002) defines a constructivist approach to teaching and learning as: "An approach that encourages students to structure personal understanding through an active learning experience" (p. 20). Table 2.5 shows the links between the constructivist

classrooms described by Brooks and Brooks (1999) and the constructivist learning environment created by TGM in physical education.

Table 2.5 Using TGM to Create a Constructivist Learning Environment

Descriptors of Constructivist Classrooms	**Links to the TGM Learning Environment**
Curriculum is presented whole to part with emphasis on big concepts	✓ Students experience common problems in game situations (e.g., Game 1) before being asked to deconstruct/figure out ways to solve the problems occurring in game play
Pursuit of student questions is highly valued	✓ Student input on areas they need to improve is highly valued. ✓ Teachers create a plan for a practice task that they think will help students improve but observations of game play in Game 1 & student responses and ideas shape practice design
Students are viewed as thinkers with emerging theories about the world	✓ Students are challenged to become problem solvers who think critically about "what to do" in game situations instead of just knowing how to execute basic skills ✓ TGM goals prioritize cognitive and psychomotor domains w/ an expectation that students improve thinking & moving
Teachers generally behave in an interactive manner, mediating the environment for students	✓ TGM teachers become facilitators who incorporate their observations into discussions (individual & class) and use questioning to make students think about what they are doing ✓ TGM teachers continue to change game situations to emphasize tactical problems that need to be solved during game situations introduced to students
Teachers seek the students' point of view in order to understand students' present conceptions for use in subsequent lessons	✓ Student input into what they need to improve when they play again ✓ Students asked to break down the situations occurring in game play
Assessment of student learning is interwoven with teaching and occurs through teacher observations of students at work and through exhibitions and portfolios	✓ Assessment during an exhibition could be considered a form of live and authentic assessment of learning. GPAI is used to assess game performance measures while students are engaged in game play
Students primarily work in groups	✓ Small-sided games are an important characteristic of TGM ✓ Smaller teams (e.g., 3 vs. 3, 4 vs. 4, 5 vs. 5) translates into more involvement in game play and allows teachers to emphasize "success as group"
Source: *In Search of Understanding: The Case for Constructivist Classrooms* (1999, p. 17) by Brooks & Brooks	

Although a new perspective, teacher use of TGM requires attention to the constructivist nature of the model.

Pedagogical implications for teacher application of constructive approaches to teaching physical education include: (a) teacher is a facilitator, (b) students are active learners, (c) students work in groups or modified games, (d) learning activities are

interesting and challenging, and (e) students are held accountable (Dyson, Griffin, & Hastie, 2004). Teachers who use the Tactical Games Model (TGM) facilitate a sequence of learning situations (e.g., Game 1, Q & A, Situated Practice, and Game 2) to activate student learning during each TGM lesson. Each of the TGM learning situations is a unique constructivist condition that challenges students to reflect on and find ways to improve their games playing.

Conceptualizing the TGM Sequence of Learning Situations

The constructivist nature of TGM transforms the TGM sequence into a series of purposeful learning situations that allow students to: (a) experience games playing (Game 1), (b) discuss their games playing experience (Q & A), (c) practice aspects of games playing (Situated Practice), and (d) show improvement during a culminating games playing experience (Game 2). The series of learning situations scaffold the learning process to help students identify and solve 'tactical' problems occurring in games along with make real life connections during the physical education lesson. Mitchell, Oslin, and Griffin explained the rationale for the sequence of learning situations: "In sum, the initial modified game sets the problem, the skill focus provides solutions to the problem, and the closing game applies the solutions to their game context" (2006, p. 541).

Game 1, also known as the initial game gets students into game play early on in the lesson and allows the teacher to set up the tactical problem that provides the foundation for the daily lesson. Also, the introduction of a tactical problem (e.g., maintaining possession during an invasion game) directs the teacher's observation of student game play to help determine what types of practice will help students solve the tactical problems exaggerated during game play.

The teacher's role during the Question and Answer (Q & A) learning situation is to: (a) share observations of student success and challenges during Game 1 and (b) use guided questions to help students identify problems that arose during game play and think critically about possible solutions to those problems. Mitchell, Oslin, and Griffin state: "After the initial game, questions are necessary, and the quality of your questions is the key to fostering students' critical thinking and problem solving" (2006, p. 13). They state that good teacher questions will link the initial game with the practice.

Situated practice is a learning situation that focuses on student practice during a TGM lesson. The situated practice revisits the tactical problems (e.g., maintaining possession during an invasion game) that students are encountering during game play. This practice time is designed to allow students to discover solutions to the tactical problems that were identified in Game 1 and Q & A. Examples of solutions to tactical problems include: (a) decision-making, (b) selection of off-the-ball movements, and (c) execution of on-the-ball skills. Mitchell, Oslin, and Griffin describe the teacher's role during the situated practice in the following quote: "During practice the teacher circulates and asks students what they are thinking" (2006, p. 532). In addition, they state that teachers still demonstrate effective teaching behaviors (e.g., use teaching cues) to help students focus on the critical elements of a skill or movement and allow students to work with their teams for the situated practice.

Each TGM lesson ends with a Game 2, or a final game where students are asked to apply the skills and movements they practiced in a game. This learning situation is a culmination of the student playing, thinking, and practicing during the physical education lesson. Mitchell, Oslin, and Griffin state: "After the skill practice, players return to game

play to see if game performance has improved as a result of skill practice" (2006, p. 9). The goal is for students to show improved games playing as a result of better thinking and moving learned through the TGM sequence of learning situations.

Overall, the TGM sequence is a thoughtful process that requires the teacher to play an active role in the design and implementation of each learning situation. More data is needed to explain the links between motivation and learning in physical education. In their comparison study, Rink, French, and Graham (1996) acknowledged that future studies should investigate student motivation within TGM and suggested: "Increased motivation should lead to increased involvement, which should lead to increased learner processing, which in turn should lead to increased learning" (Rink, French, & Graham, 1996, p. 494). Even less is known about student experiences within a constructivist approach to teaching and learning.

I argue that the TGM sequence of learning situations (Game 1, Q & A, Practice, and Game 2) holds the key for understanding the constructivist nature of the student Tactical Games Model (TGM) sport experience. Situational interest motivation theory provides a central framework to help interpret student experiences during TGM learning situations (Game 1, Q & A, Practice, and Game 2).

Using Situational Interest Motivation as a Central Theoretical Framework

Recent Tactical Games Model (TGM) studies have incorporated theoretical frameworks (information processing, situated learning perspective) to better explain student learning and knowledge construction within TGM. Research that applies theoretical frames to examine the motivational aspects of the constructivist conditions created by TGM is missing from the literature. The potential benefits of using

constructivist approaches to teach physical education are great but more research is needed to support the expected outcomes related to motivation and learning within TGM. Situational interest is gaining credibility as a way to investigate student motivation during physical education tasks (Chen, 2001) that could be applied to TGM research (Griffin, Brooker, & Patton, 2005).

Role of Interest Theory

Interest is a type of motivation that has been used by researchers to examine a child's individual preferences and needs during an experience (Dewey, 1944). Pintrich and Schunk (2002) included Role of Interest Theory as one of the popular motivational theories (e.g., Expectancy-Value Theory, Attribution Theory, Social Cognitive Theory, Achievement Goal Theory, Intrinsic Motivation, and Role of Interest Theory) that researchers are using to explain student motivation in educational settings. Role of interest theory (Hidi, 1992; Hidi & Anderson, 1992; Krapp, Hidi, Renninger, 1992) defines interest as having two parts: 1) personal interest and 2) situational interest. Personal interest is characterized as developing slowly and being long lasting while situational interest is short term and activated by something in the immediate environment.

Personal Interest Motivation

Personal interests are considered to be stable and are usually associated with increased knowledge and positive emotions. Mitchell (1993) writes that personal interest refers to an interest that people bring to some environment or content. Chen, Darst, and Pangrazzi (1999) state,

> Personal interest can have a strong influence on how students select and persist in learning certain content as opposed to others. For instance,

> personal interest can motivate students to choose a history class over mathematics, or a football unit over aerobics. (p. 158)

Some physical education teachers consider student personal interests in an effort to discover their broad interests about physical education subject matter and specific units of study within the curriculum. Also, many teachers and researchers believe that individuals will put forth effort in an activity that personally interests them (Krapp, Hidi, & Renninger, 1992).

Chen (2001) stated that early interest studies in physical education focused on students' liking or not liking physical education and specific units in physical education and neglected to help us understand how interest influences student learning in physical education. Situational interest is more task/situation specific, caused by something within a lesson and in the immediate environment. Investigators of situational interest consider personal interest a secondary priority because teachers have little control over student personal interests.

Situational Interest Motivation

Situational interest is a type of motivation related to a positive person-activity/environment interaction (Chen, Darst, & Pangrazi, 1999; Deci, 1992; Mitchell, 1993). For this investigation into the TGM sequence, situational interest will be defined as a student-TGM learning situation experience. Also, phases of situational interest have been proposed by researchers to explain an individual's experiences within an activity/environment.

These phases of situational interest motivation consist of triggering situational interest and maintaining situational interest (Hidi, 2000; Hidi & Harackiewicz, 2000). Mitchell (1993) used "catch" and "hold" to describe the phases of situational interest

during investigations in mathematics. Furthermore, Ainley, Hidi, and Berndorff (2002) suggested that there is a gap between what happens during the arousal of interest (motivation to get involved) and actual student learning. This study will consider student motivation to get involved and stay involved during different TGM learning situations (e.g., Game 1).

Mitchell (1993) communicated that the more students perceive themselves as active learners rather than as passive absorbers of knowledge, the more a classroom environment will hold student situational interest. Theories that explain why students' are motivated to get involved and improve during learning situations are valuable to both teachers and researchers. TGM offers a unique context for further examination of the phases of interest motivation during a TGM learning situation (i.e., Game 1, Q&A, Practice, and Game 2).

Empirical Findings for Situational Interest Motivation

Hidi & Anderson (1992) state that interest motivation research over the last 20 years has emphasized the cognitive domain with little concern for the affective factors related to school context. Student motivation to get involved and motivation to improve/learn are examples of affective factors that concern physical education teachers. Krapp, Renninger, and Hidi (1992) list five fields of interest research: (a) the relation between personal interest and academic achievement, (b) the relation between personal interest and the structure of acquired knowledge, (c) the relation between situation interest and academic achievement, (d) the influence of situational interest in text-based learning, and (e) the explanation of the interest effect.

Early situational interest research was conducted in the subject area of reading (e.g., seductive details and their placement in text) but a recent review of literature shows application of situational interest in physical education and mathematics. Recent situational interest research in physical education and math focuses on the situational influence of learning tasks/activities on student interest motivation.

Six situational interest studies (Chen, Darst, & Pangrazi, 1999; Chen & Darst, 2001; Chen, Darst, & Pangrazi, 2001; Mitchell, 1993; Shen & Chen, 2006; Wilson, 1994) offer valuable findings for situational interest motivation in educational settings. Situational interest studies in the field of reading (e.g., Ainley, Hidi, & Berndorff, 2002) were not included because of difficulty in transferring findings to practical application of situational interest in physical education.

A majority of the participants in these studies were middle and high school students. One of the studies included a span of participants from fifth grade through college age students (Mitchell, 1997). Common methods for data collection include rating scales (e.g., Likert scales, questionnaires), student record keeping, observation, and interviews. Specialized surveys that collect data about both personal and situational interest and Likert scales are the key methods visible in the studies reviewed in this section of the review.

Important findings from the situational interest studies include: (a) enjoyment plays an important role in situational interest (Chen, Darst, & Pangrazi, 1999), (b) strategies are available to support situational interest (Chen & Darst, 2001; Mitchell, 1993; Wilson, 1994), (c) the addition of seductive details (a component used in text-based studies) to a net games unit distracted students instead of increase situational

interest motivation (Shen, McCaughtry, Martin, & Dillon, 2006), and (d) situational interest may override the negative effects of negative personal interest (Mitchell, 1997; Shen & Chen, 2006). The following paragraphs provide more details about the important findings for situational interest motivation research.

Enjoyment and Situational Interest

Enjoyment has been identified as a factor that influences situational interest. Chen, Darst, and Pangrazi (1999, 2001) conducted several situational interest studies that examined the influence of different dimensions (e.g. novelty, challenge, exploration intention, instant enjoyment, and attention demand) associated with situational interest during middle school basketball lessons. Using the Situational Interest Scale (Chen, Darst, & Pangrazi, 1999), students were asked to watch and respond to videos on jogging and gymnastics along with participate in and report on basketball tasks.

The main finding from their studies (1999, 2001) was that student instant enjoyment led to student situational interest motivation. Specifically, they stated, "The analyzed data revealed that high situational interest depends primarily upon instant enjoyment during a person-activity interaction" (p. 397). One of the expected outcomes for students who experience a Tactical Games Model (TGM) sport unit is that they will enjoy the games playing learning situations.

Chen, Darst, and Pangrazi (2001) concluded that teachers should offer opportunities for students to explore tasks instead of just varying and offering new physical activities to support enjoyment and enhance situational interest during physical education class. Additional strategies have been identified to help teachers enhance student situational interest motivation.

Situational Interest and Increased Physical Activity

A study by Shen and Chen (2006) provided a foundation for examining the link between motivation and physical activity. The purpose of their study was to explore the extent of interrelations among prior knowledge, learning strategies, interests, physical engagement, and learning outcomes during a sixth grade volleyball unit. They used the Model of Domain Learning (MDL) as their theoretical frame for investigating the interrelations among student knowledge, interests, and learning strategies.

Shen and Chen presented several findings for student situational interest during a volleyball unit. Specifically, they found: (a) a moderate correlation between situational interest and physical engagement during class (number of steps documented by students), (b) situational interest related to changes in a student's physical involvement during the volleyball unit, and (c) situational interest played a role in changing personal interest for some students. This connection between student reports of situational interest and increased physical activity are important because physical education teachers continue to look for ways to motivate students to participate in physical activity.

One of the limitations that Shen and Chen acknowledged within their study was the lack of assessment for student skill improvement. Physical education teachers frequently provide data about skill execution and skill improvement as evidence that students are learning. Studies that present data for both situational interest motivation and learning (e.g., student skill improvement, decision-making) will be an asset to motivation research in physical education.

Strategies that Support Student Situational Interest

After creating and testing multifaceted situational interest models, several studies (Chen, Darst, & Pangrazi, 1999; Mitchell, 1993; Wilson, 1994) discussed strategies to help teachers design tasks and learning environments to support student situational interest. First, Mitchell (1993) identified that there were "catch" and "hold" facets (phases of) situational interest. He found that groups, puzzles, and computers were "catch" facets in math class that had weak correlations with situational interest and involvement and meaningfulness were "hold" facets that had a moderate and a strong correlation with situational interest. Mitchell indicated that there were clear links between situational interest and positive student reports about involvement and meaningfulness ("hold" facets). These findings support the need for quality planning that ensures that students are involved and find each task to be meaningful.

Second, Chen and Darst (2001) found that challenging tasks provided a greater level of situational interest compared to simple drills. Specifically, they investigated the effects of the following basketball tasks on situational interest: (a) stationary chest pass task, (b) defensive footwork task, (c) pass-shoot group work task, and (d) five-minute skill analysis of video showing elite basketball players task. Student responses to the Situational Interest Scale (Chen, Darst, & Pangrazi, 1999) revealed that student situational interest was linked to a tasks level of cognitive demand (Chen & Darst, 2001). Students rated the pass-shoot task and the video skill analysis tasks as the highest in situational interest. They explain: "It seems reasonable to conclude that once a learning task demands relatively high cognitive engagement, it is likely to be perceived as interesting and enjoyable regardless of the intensity of physical involvement of the task demands" (Chen & Darst, 2001, p. 160).

Third, Wilson (1994) examined both the learning environment and student responses about individual tasks. She reported that students listed: (a) having fun, (b) learning, and (c) connecting with others to describe an optimal classroom experience. In contrast, Wilson noted that student motivation was jeopardized if students' were not fully engaged/involved in an activity or received negative feedback from self, peers, and teachers.

Overall, enhancing the cognitive demand (Chen & Darst, 2001) of tasks and offering opportunities for students to connect with other students (Wilson, 1994) would be ways to "catch" a students' situational interest and helping students' set goals for learning (Wilson, 1994), along with considering student involvement and meaningfulness of tasks (Mitchell, 1993) would be ways to "hold" a student's situational interest motivation during a task/lesson. Supporting student situational interest could also help teachers overcome student negative personal interest (Shen & Chen, 2006) during a sport-related unit.

Future Situational Interest-TGM Research

Thoughtful task design is one way that teachers can counter the fact that students enter units of study with a range of personal interests and skill levels. TGM presents learning situations designed to help the learner become a better games player. The TGM sequence of learning situations assists teacher planning for meaningful and authentic learning tasks. The unique conditions/learning situations and the learner-centered environment created by TGM seem to be a good match for the person-activity/environment interaction required by situational interest motivation.

Situational interest can be used to interpret the phases of a student-learning situation experience within the TGM sequence. Discovering why students choose to stay motivated or lose motivation during TGM learning situations and what types of learning occurs within these different types of learning experiences would set the foundation for building a comprehensive picture of motivation within TGM. More research is needed to explain the motivational impact of TGM learning situations and the student TGM sport experience.

Deconstructing Student TGM Sport Experiences

A holistic approach to examining a sport experience should be taken to investigate student Tactical Games Model (TGM) experiences for two reasons. First, motivation should not be studied in isolation. Second, using situational interest to study the constructivist nature of the TGM sequence represents one layer of student TGM sport experience. The following paragraphs discuss: (a) conceptualizing motivation and learning within TGM and (b) working toward a comprehensive picture of student TGM sport experiences

Conceptualizing Motivation and Learning within a TGM Sport Unit

Researchers (Burke, 1995; Chen, 2001; Chen & Ennis, 2004; Hidi & Harackiewicz, 2000; Krapp, Hidi, & Renninger, 1992; Rink, 2001) and teachers agree that motivation influences student involvement and learning. Two challenges exist for teachers and researchers: (a) agreement on a common definition for motivation and (b) deciding how to interpret student motivation. The general definition of motivation being referenced in this study is: "Motivation is the process whereby goal-directed activity is instigated and sustained" (Pintrich & Schunk, 2002, p. 5). This definition was selected

because the wording indicates that an individual is working toward a goal and that motivation can occur in phases. This paper refers to these phases as motivation to get involved and motivation to stay involved to improve/learn to align with the established "catch" and "hold" phases of situational interest (Mitchell, 1993).

Many researchers have recommended strategies to help teachers better connect motivation and learning. Burke (1995) listed five ways that teachers can help facilitate the relationship between content and motivation. First, learners must be involved with the "ownership" of the rationale, goals, strategies, and assessment of that with which they are to be engaged. This supports the notion of active learners that was addressed by Mitchell (1993) and the role of game involvement being investigated by Mitchell, Griffin, and Oslin (1995).

Second, options and choices about the learning environment and the various curriculum components (e.g., persons, places, time, content, methods, and materials) must be made available to students. Third, no matter what the learning outcomes, there must be a direct connection with the real world outside of the classroom. Fourth, teachers need to provide a balance of cognitive and affective development. Fifth, teachers must share the responsibility of learning with the learner in order to enhance content fulfillment and learner motivation. Sharing the responsibility of learning with the learner aligns with the goals of TGM that concentrate on student construction of knowledge through student problem solving and critical thinking within the TGM sequence.

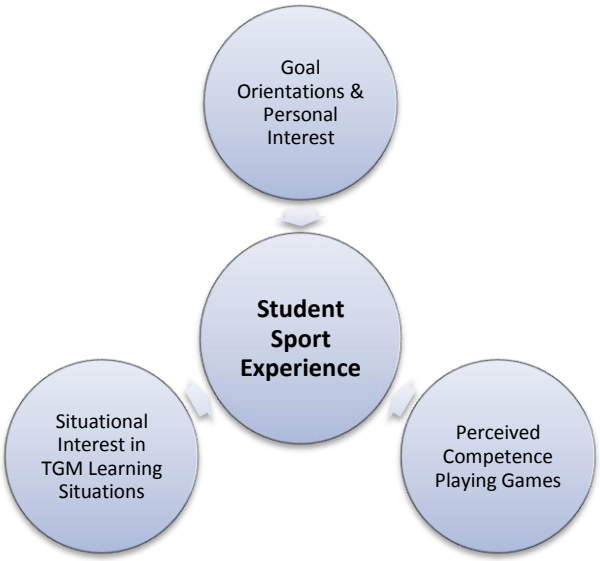
Urdan and Schoenfelder (2006) stated: "Educators can directly enhance student motivation by altering controllable factors such as teaching style, curricula, and school or

classroom policies" (p. 345). Few researchers have answered the call for a study that presents a comprehensive picture of student motivation to better comprehend student experiences within TGM and other constructivist approaches to teaching physical education.

Working Toward a Comprehensive Picture of Student TGM Sport Experiences

Research on student motivation and learning within the Tactical Games Model (TGM) has just begun and there is much work to be done in order to provide a complete picture of student experiences within a TGM sport unit. I propose that future TGM studies should: (a) gather background information about student goals and personal interests, (b) use situational interest motivation to study the constructivist conditions/ TGM learning situations that students experience during TGM lessons, (c) consider the development of student perceived competence playing games, and (d) attempt to link motivation to changes in student game performance. Figure 1 arranges the motivational elements that should be deconstructed when studying a student sport experience. Little is known about the student TGM sport experience. Findings that describe TGM's influence on student motivation, improvement, and learning will strengthen the case for using constructivist approaches to teaching and learning in physical education.

Figure 1: Deconstructing Motivation within a Sport Experience



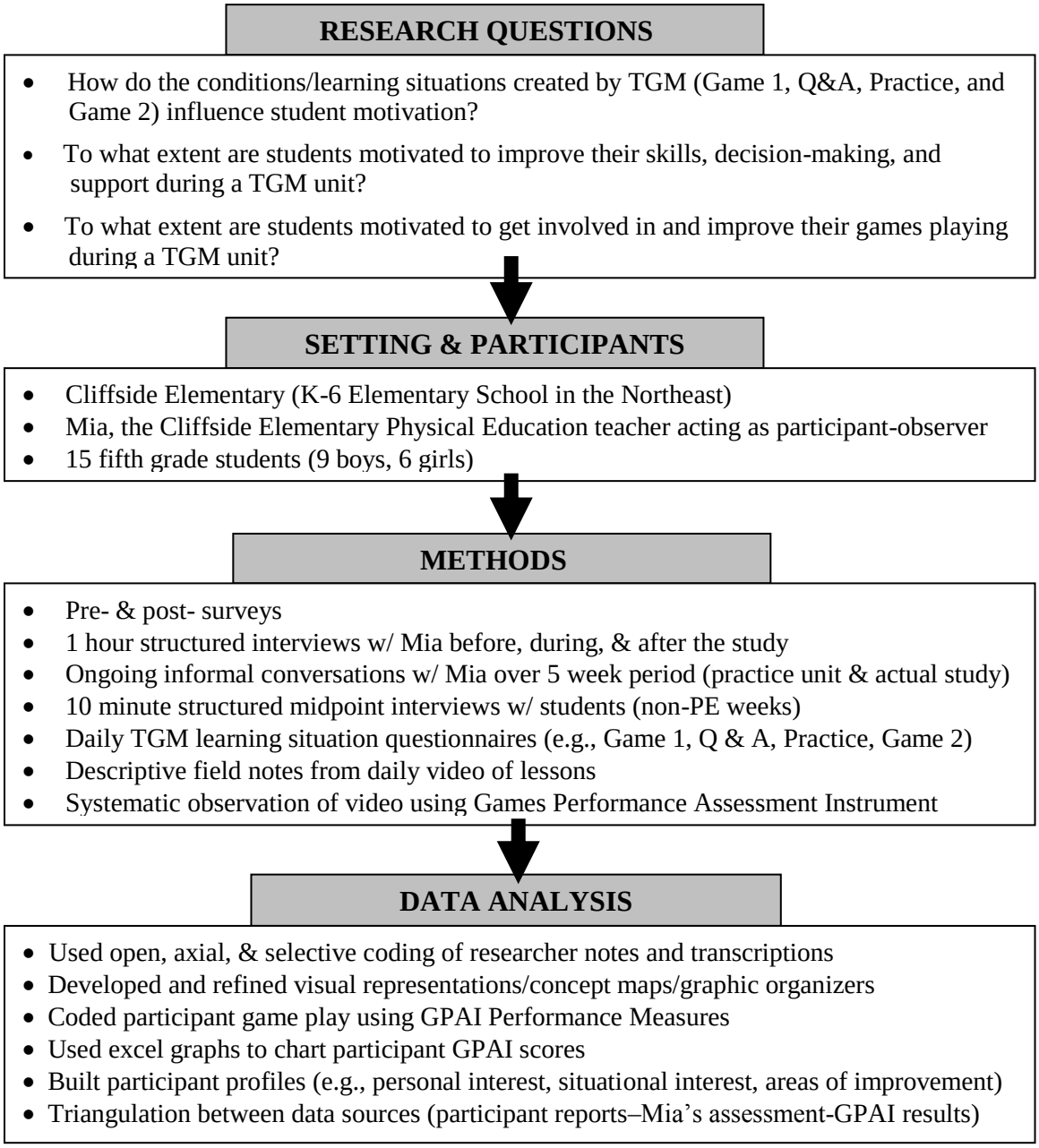
CHAPTER 3

METHODOLOGY

The purpose of this qualitative study was to present an in-depth examination of student motivation during an Ultimate unit designed and taught using the Tactical Games Model (TGM). Many researchers (Burke, 1995; Chen, 2001; Chen & Ennis, 2004; Hidi & Harackiewicz, 2000; Rink, 2001; Rink, French, & Graham, 1996) discuss the influence of motivation on involvement, improvement, and learning in schools but few studies explain the influence of motivation on learning in physical education. Therefore, data collection and analysis focused on changes in motivation and explored the links between motivation and other expected outcomes (e.g., increased perceived competence, improved game performance) when a teacher designs and teaches sport using TGM.

Data were collected systematically to provide 'thick, rich descriptions' of participant experiences within the TGM Sequence (Game 1, Q & A, Practice, and Game 2) during daily lessons and throughout the unit. This description includes teacher-researcher observations, participant self-reports, participant-observer perspectives, and game performance scores to illustrate the student TGM sport experience. This chapter provides details about: (a) study design, (b) researcher profile, (c) site selection, (d) entry to site, (e) setting description, (f) participants, (g) practice unit, (h) data collection, (i) data analysis, and (j) trustworthiness. An overview of the study design is presented in Figure 2.

Figure 2: Overview of Study Design



Grounded Theory Research Design

This qualitative study was designed using a grounded theory (Creswell, 1998; Strauss & Corbin, 1998) approach to expand present theory about influence on student motivation during a Tactical Games Model's (TGM) sport unit. Case study (Merriam, 1998) and action research (Altrichter, Posch, & Somekh, 2000; Glanz, 1998; Rossman &

Rallis, 2003) were also incorporated to strengthen the study design. Case study guidelines offered a way for me to organize and describe individual participant, team, and class experiences during a physical education unit designed and taught with TGM. Action research guidelines were included to shape and reflect on my participatory role as teacher-researcher.

Grounded theory remained the backbone of this study for two reasons. First, visual models are needed to better understand interest motivation and perceived competence outcomes during a TGM sport unit. Motivation remains an expected student outcome but few TGM studies have studied participant motivation. The following statement outlines the intended motivational structure within a TGM sport experience:

> A tactical games approach foregrounds students with the underlying goal of appealing to their interest in games playing so that they value (e.g., appreciate) the need to work toward improved game performance. Improving game performance we hope will lead to greater enjoyment, interest, and perceived competence to become lifelong learners. (Mitchell, Oslin, & Griffin, 2003, p. 166)

Second, examples of researcher use of theoretical frames to explain motivation is missing from the TGM literature. Information processing theory (Griffin, Dodds, Placek, & Tremino, 2001; Nevett, Rovegno, Babiarz, & McCaughtry, 2001) has been used to investigate participant knowledge construction and situated learning theory (Kirk, Brooker, & Braiuka, 2000; Kirk, MacPhail, & Griffin, 2005; Rovegno, Nevett, Brock, & Babiarz, 2001) is being used to explain cognition related to an individual, a task, and the environment. Use of theoretical frames to better understand student motivation within a TGM sport unit is needed to strengthen the TGM literature. Situational interest motivation (Chen, Darst, & Pangrazi, 1999; Deci, 1992; Krapp, Hidi, & Renninger, 1992; Mitchell, 1993) was selected as the central theoretical framework for studying student

motivation within a TGM sport unit. Specifically, situational interest offered a way to interpret student motivation to participate/get involved (catch interest) in and motivation to stay involved (hold interest) in a TGM learning situation (Game 1, Q & A, Practice, Game 2). Goal orientations (Nicholls's, 1984) and personal interest (Krapp, Hidi, & Renninger, 1992) were also considered important motivation constructs along with self-perceptions of competence (Dweck, 2002). For example, self-perceptions of competence was referenced to better understand student perceived improvement/perceived competence during the TGM sport experience.

According to Strauss and Corbin (1998), grounded theory should: "offer insight, enhance understanding, and provide a meaningful guide to action" (p. 12). Therefore, the use of grounded theory and a situational interest motivation framework aimed to: (a) develop a visual model for describing interest motivation within a TGM unit and (b) build a meaningful guide for action for teachers interested in experimenting with TGM as a way to maximize motivation and improvement during constructivist sport units.

Case study and action research approaches to qualitative research strengthened the overall qualitative study design, data collection methods, and data analysis. An overarching goal for this study was to provide a window into student TGM sport experiences. Merriam (1998) stated that a case study approach is used when a researcher needs to: "gain an in-depth understanding of the situation and meaning for those involved" (p. 19). Action research helped outline and make public teacher-researcher: (a) background information, (b) focus for study, (c) reflections, and (d) considerations for "taking action" (Glanz) and making new knowledge public (Altrichter, Posch, & Somekh). The 'teacher-researcher' terminology adopted for this study design is visible in

action research literature (Altrichter, Posch, & Somekh, 2000, p. 7). A common characteristic of both grounded theory and action research is making new knowledge accessible to other professionals.

Researcher Profile

As a qualitative researcher, I recognized that I am immersed in the research process, ongoing analysis, and interpretation of results. I was also aware that I had accepted responsibility for dual roles (teacher and researcher) during this study. The term teacher-researcher language was used because I believed that in order for this Tactical Games Model (TGM) study to be credible I needed to first establish that I was faithfully implementing a reasonable version (Metzler, 2005) of TGM.

Despite initial questions about how I would balance both teacher and researcher roles, I took extra steps to perform both teaching responsibilities and data collection in an ethical manner. For instance, data collection methods were integrated into daily lesson plans in the form of assessments and the participant observer and video-taped lessons were available to confirm that physical education lessons were successful in presenting important subject matter and engaging participants in different parts of the TGM sequence of learning situations (Game 1, Q & A, Practice, and Game 2). The following paragraphs provide important details about my researcher profile: (a) professional biography, (b) value orientations, and (c) prior knowledge and experiences using TGM.

Researcher Biography

My work as a researcher is influenced by a variety of experiences in the field of education. Past education positions as physical education teacher and assistant principal shape my present work as teacher educator and researcher. Since teaching has played the

most influential role in who I am as an educator, I commonly refer to myself as a teacher who conducts research. This characterization was applicable to my role in this study because I was responsible for teaching the physical education unit and conducting the research. The following paragraphs summarize my roles in education and physical education.

Teacher

I have four years of public school teaching experiences in Massachusetts (2 years) and North Carolina (2 years). My first teaching position required me to teach physical education and health to kindergarten through eighth grade and instruct swimming to fourth through eighth grade in Springfield, Massachusetts. A majority of the students in my classes were from Puerto Rico and English was their second language. Total wellness and sport were the main components of our eclectic physical education curriculum. After two years I left this position in Springfield, Massachusetts to teach in coastal North Carolina. I taught fourth and fifth grade physical education and health education (using healthful living curriculum) at an upper elementary school during my first year in North Carolina and then transferred to a middle school during my second year in Carteret County, North Carolina. The second year I transferred to a local middle school where I taught physical education classes focused on fitness, sport, and cooperative activities and also coached varsity soccer at the neighboring high school.

My instruction was focused on improving effective teaching behaviors and using a combination of command, practice, self-check, and reciprocal teaching styles. I was not familiar with instructional models and did not have an understanding of constructivism in education during my public school teaching experience. Later on in my

public school teaching, I gained a strong appreciation for student input, ideas, and sought out ways to challenge students. In regard to content strengths, I developed expertise in invasion games (e.g., soccer), total wellness, and aquatics (e.g., swimming) through these teaching experiences.

Administrator

After pursuing a Masters degree in education administration, I shifted from middle school teacher to middle school assistant principal. Working as an administrator offered a unique perspective into how physical education and other subject areas contributed to schools and school improvement initiatives. During my two years as a middle school assistant principal in Rhode Island, my views of teaching and learning in schools were expanded by experiences in: (a) instructional leadership training related to standards-based environments, (b) collaborative supervision of new and veteran teachers in all subject areas, (c) inservice teacher professional development focused on school improvement plans and making progress toward the 'Principles of Learning' (introduced by the University of Pittsburgh Institute for Learning), and (d) curriculum revision projects in a variety of content areas. Ultimately, this position allowed me to think beyond physical education settings and reflect on how the work of physical education teachers can enhance the school environment and support school improvement initiatives.

Teacher Educator

Experiences in teacher education allowed me to connect practice, theory, and research. While completing my dissertation, I am teaching courses at Salisbury University (SU) in the Physical Education Teacher Education (PETE) Program. Since SU is a teaching institution, my responsibilities include teaching coursework focused on

secondary physical education methods of instruction and K-12 curriculum while also supervising preservice teachers out in the schools. My curriculum and methods courses focus on how instructional models influence the planning, teaching, and assessment process. Specifically, my curriculum course introduces instructional models as a way to reshape the physical education subject matter deemed most important and secondary methods includes required 'experiments' and unit plans focused on planning and implementation of models.

I also teach a sport pedagogy class and instructional strategies course. The sport pedagogy course titled Team Sports II introduces physical education teacher education majors to the Tactical Games Model (TGM) as a different way to design and teach sport lessons/units. Finally, I teach/facilitate an introductory course titled Instructional Strategies that introduces lesson planning, effective teaching behaviors, and teaching styles. This course has a home school physical education program field experience component that creates opportunities for majors to practice their effective teaching behaviors and test different teaching styles.

Before entering a full-time faculty position at SU, my teaching and learning were influenced by graduate assistantship positions, co-teaching opportunities, and an adjunct teaching position in successful physical education teacher education programs. Courses involved with planning for elementary and secondary experiences in physical education. Professional experiences and collaboration with a variety of teacher educators greatly influenced my understanding of preservice teacher preparation for the field of physical education.

Researcher

Finally, research represents a new educational experience. As part of my Teacher Education and School Improvement (TESI) Doctoral Program at the University of Massachusetts-Amherst, I was required to design and complete several studies (i.e., Carpenter, 2005, 2006, 2007). I was also invited to collaborate with professors and classmates on physical education studies (e.g., Fisette, Bohler, Carpenter, & Griffin, 2006). My strength is qualitative research and my interests include motivation in physical education which I feel remains an important but gray area in schools.

Value Orientations

I completed the Value Orientation Inventory (VOI-2) (Ennis & Chen, 1993) during early analysis as a way to establish and share my priorities as a physical education teacher and researcher. Table 3.1 shows my scores for each value orientation category and my interpretation of the goal of each orientation.

Table 3.1: Teacher-Researcher VOI-2 Scores (based on 270 points)

Value Orientation	Low	Med	High	My Interpretations of Value Orientation
Learning Process (LP)			74	Goal is for students to make decisions, problem solve, and be involved in the learning process
Disciplinary Mastery (DM)			69	Goal is to focus on progression of basic skill performance and knowledge in movement, sport, and exercise
Ecological Integration (EI)		49		Goal is to find the balance between content-learner-setting to enhance learning environment
Self-Actualization (SA)		48		Goal is to nurture student personal growth & self esteem
Social Reconstruction (SR)	30			Goal is to emphasize changes related to society, social justice, & equity issues
Source: *Using Curriculum to Enhance Student Learning* (2003, pp. 111 – 114) by Ennis				

These VOI-2 scores present additional details about my approach to teaching physical education. Both Learning Process (LP) and Disciplinary Mastery (DM) scores were in the high score range representing my strongest value orientations. My Learning Process (LP) score was 72 and seems to be a good match for my goal to maximize

student participation by actively involving everyone in the learning process. The high score of 69 for Disciplinary Mastery (DM) reflects my steady focus on continued skill improvement and knowledge gains during a physical education unit/program.

Ecological Integration (EI) and Self Actualization (SA) value orientations were medium range scores. My Ecological Integration (EI) was 49 and I feel that I probably put more emphasis on activating the learner during instruction than matching the learner with content and learning environment. My Self Actualization (SA) score was 48 and I do believe that this score reflects my belief that building self-esteem can be accomplished by building a positive learning environment that supports student success versus teaching self-esteem explicitly during physical education class.

Social Reconstruction (SR) was my weakest value orientation with a score of 30 putting me in the low range. I think that my lower score for Social Reconstruction (SR) is grounded in my focus on the technical aspects of teaching and learning rather than being structured for societal change. My hope is that by setting clear expectations for good sporting behavior and working toward affective objectives (e.g., teamwork) that students will learn to respect self and others. I view the inclusion of the Teaching for Personal and Social Responsibility (TPSR) by Hellison (2003) as an avenue that I could take to make a larger impact on student lives inside and outside physical education.

Prior Knowledge and Experience Using the Tactical Games Model (TGM)

I was not familiar with the Tactical Games Model (TGM) prior to entering the University of Massachusetts-Amherst. My public school teaching experiences had been influenced by use of effective teaching behaviors and Mosston and Ashworth's (1994) spectrum of teaching styles that I learned in my undergraduate studies at Springfield

College. In addition, early assessment experiences were limited to fitness testing and skill testing but later on I experimented with a variety of assessment (e.g., surveys, journals, unit tests, and checklists focused on skill in games playing) in my physical education classes. I was not familiar with authentic assessment.

Since 2003, I have been learning about TGM theory and practice alongside Linda Griffin, a physical education expert specializing in sport pedagogy. Early on I made practical connections to the use of modified games but soon realized the complex nature of learning through games. Also, I remain intrigued by the potential benefits of the purposeful whole – part – whole structure created by the TGM lesson sequence of learning situations (Game 1, Q & A, Practice, and Game 2). After gaining a deeper understanding of TGM, I believe that the model is a nice match for teaching sport units in upper elementary, middle, and high school physical education.

My practical TGM experiences prior to this study are limited to: (a) leading TGM professional development sessions for secondary physical education teachers, (b) teaching sample TGM lessons for preservice teachers, (c) participating in a study with Linda Griffin, Jen Fisette, and Heidi Bohler that investigated preservice teacher interpretation and implementation of TGM, (d) assisting Linda Griffin and physical education teacher education classmates with TGM presentations at conferences, (e) teaching a middle school teacher how to plan and teach a sport unit using TGM, and (f) conducting a research study that examined teacher implementation and student situational interest motivation during a 5^{th} and 6^{th} grade TGM water polo unit.

My dissertation committee and I agreed that I would need to demonstrate a level of expertise in designing and teaching a TGM unit since I was acting as teacher-

researcher. Arrangements were made for me to teach two eight-day TGM Ultimate units. One of the units would serve as a practice unit before teaching the unit being used for the actual study. The practice unit will be described later in this chapter.

School Site Selection

The following criteria were established for site selection: (a) public school physical education program, (b) eight to twelve day sport unit, and (c) teacher uses the Tactical Games Model (TGM) to design and teach the sport unit. My original plan was to find a middle school physical education teacher using TGM to teach sport within a two hour radius. After contacting friends in the field of physical education and communicating with several teacher educators familiar with TGM, I located a middle school physical education department with teachers experimenting with TGM approximately two hours away. Initial conversations with the department chair at this original site were positive but I determined that this site was not ideal for two reasons. First, my contact person informed me that their sport units lasted four to five days only and there was no room in the program calendar for additional lessons. This did not meet my criterion for an eight to twelve day unit. Second, upon further reflection the time required for travel for planning meetings, lesson preparation, and actual data collection seemed to be unrealistic.

A change in criteria from teacher using TGM to researcher acting as teacher (teacher-researcher) was approved by Linda Griffin, my chairperson and my committee due to a limited network of teachers using TGM within a reasonable distance and time needed to effectively train and support a teacher interested in using TGM to design and teach a sport unit. An email with summary of proposed study (Appendix A) was sent to

local middle schools and elementary schools with a grade six. Cliffside Elementary was included as a potential site among local schools because of the sixth grade physical education classes.

Mia, a K-6 physical education teacher at Cliffside Elementary responded positively to this email by communicating that she was willing to participate in a study that examined student motivation during sport units in her physical education program. Specifically, she wrote that the study sounded appealing because she was interested in learning new ways of teaching her fifth and sixth grade physical education classes. Next, I scheduled a meeting with Mia to: (a) introduce myself, (b) provide details about participant roles and responsibilities of participants, and (c) answer any and all of her questions about my intended study.

After our thirty minute meeting, Mia confirmed that she was interested in volunteering to participate in my study and agreed to allow me to become the lead teacher for an eight day sport unit. I asked her permission to teach the sport units because: (a) she indicated that she was not familiar with the Tactical Games Model (TGM), (b) the literature shows that investigating expected outcomes (e.g., increased motivation, improved game performance) should be linked to faithful implementation of an instructional model (Metzler, 2005), and (c) there was limited time left in the school year to train Mia for teaching sport using TGM before the study. After looking at the school calendar for May and June, Mia made arrangements for me to teach a practice unit to her sixth grade class and then conduct my actual study with her fifth grade class after I received proper permission to enter Cliffside Elementary as a visitor/guest teacher.

Originally, I asked if I could teach a twelve day invasion games unit and identified Soccer and Ultimate Frisbee (Ultimate) as examples of sport units within the invasion games category. Mia indicated that Ultimate would be a good unit because her students had not experienced Ultimate and agreed to eight-day units because she felt that 12 day units were too long. All of my criteria were met for establishing an appropriate site for this TGM study and Cliffside Elementary was conveniently located for researcher access.

Gaining Entry and Informed Consent

A series of steps were taken to gain entry into Cliffside Elementary. These steps included: (a) meeting with a University of Massachusetts Amherst School of Education Human Subjects – Internal Review Board representative, (b) communications with the Cliffside Elementary school principal, (c) completion and approval of required paperwork at the Cliffside Elementary main office (e.g., CORI), (d) completion and approval of required paperwork for conducting research within the Western Regional School District, (e) emails to classroom teachers to introduce self and summarize my upcoming work as a teacher-researcher during physical education class, and (f) informed consent forms distributed and signed by all participants and their parent(s)/guardian.

With support of my dissertation committee I met with the University of Massachusetts-Amherst School of Education Human Subjects Committee. An Internal Review Board representative reviewed my research expectations for participants and evaluated my proposed informed consent forms for students and their parents/guardians. Minor revisions were made to consent form language and a statement was added to request permission to show video clips recorded during the study to teachers learning to

use the Tactical Games Model (TGM). Informed consent forms (Appendix B, C) stated purpose, contact information, time frame, rights to leave study, and ensured that pseudonyms would be assigned to setting and participants. All Human Subjects Review Board requirements (e.g., forms, signatures, CITI training) were completed prior to the start of the study.

Initial communications with Nate, the principal were email exchanges that introduced myself, outlined key details about my study, and mentioned that Mia was volunteering to work with me on the physical education study. A formal meeting was scheduled to further discuss: (a) study purpose, (b) roles of participants, and (c) the importance of the study. I presented a two-page document (Appendix D) to reinforce the presentation of the above details. Nate stated that he was satisfied with the detailed explanation of the practice unit and actual study and gave me verbal approval for entry to Cliffside Elementary as visitor/guest teacher pending completion of the Criminal Offender Record Information (CORI) process and school volunteer paperwork.

In addition, Nate directed me to the central office administrator overseeing research within the Western Regional School District. I received a two-page manual that outlined expectations for researchers and a District-Researcher Memorandum of Understanding Form that needed to be signed, completed, and then returned with supporting materials (e.g., proposal, informed consent forms). Approval was granted after a one week period and a communication was sent from the central office to Nate at Cliffside Elementary.

Upon gaining full permission from both the principal and Western Regional School District administration, I emailed the fifth and sixth grade classroom teachers

(Appendix E) to introduce myself and provide an overview of the work that I was going to be doing as teacher and researcher during physical education classes. Since my actual study focused on fifth grade participants, I requested a time to introduce and discuss my work with the fifth grade students. The fifth grade teacher welcomed my request and offered days and times that would work for me to visit her classroom to introduce myself and present a brief overview of my study.

A common day and time was agreed upon for a visit to the fifth grade classroom. I was provided with a seat at a large round table in the fifth grade classroom. Nineteen fifth graders gathered around the table and the fifth grade teacher introduced me to the class. I thanked the fifth graders for their time in meeting with me, provided a brief introduction as a doctoral student and physical education teacher, and asked how many students knew about or had played Ultimate. A few hands went up and I talked about the sport and my interest in knowing about student experiences during Ultimate if I teach physical education a different way. Five minutes were dedicated to a question and answer session and most student questions focused on the types of activities that they would experience during the Ultimate unit.

I also explained that the signed informed consent forms would allow me to ask students about their motivation different parts of the Ultimate lessons. Instead of using the term motivation I used the following developmental phrases, "energized to get involved" or "not energized to get involved" and "excited to learn" or "not excited to learn". The fifth grade classroom teacher reinforced the importance of the informed consent forms and asked all fifth graders to place the forms in their folders to take home. At the end of the meeting, I thanked the fifth graders and the classroom teacher for their

time. I also pointed out that my contact information was at the bottom of the informed consent form if a parent or guardian had question for me or my chairperson overseeing the study.

Setting (Site Description)

Cliffside Elementary is one of five elementary schools in the Western Regional School District located in the Northeast. Cliffside Elementary is a small K-6 school with 21 teachers and 193 students in 2007. When entering Cliffside Elementary I noticed an appreciation for multi-cultural education (e.g., pictures of students with flags of their home countries) and the diverse student population (e.g., quotes about the importance of diversity posted at main entrance). The racial breakdown of students during this study was 15.5 % African American, 15 % Asian, 45 % White, 9.3 % Hispanic, and 15 % multi-ethnic. Student gender was 52 percent Male and 48 percent Female. Forty percent of the student population at Cliffside Elementary was considered low income and 28 percent of students identify that English is not their first language.

Physical Education Program

Physical education was one of three specials courses that students were required to take at Cliffside Elementary. Specifically, physical education was included in a three week rotating schedule with art and computers (one week of physical education, one week of art, and one week of computers). Fifth graders (Mon., Tues., Wed., & Fri.) and sixth graders (Mon., Tues, Wed., & Thurs.) attended physical education classes four times per week every three weeks from 10:50 am – 11:30 am (40 minutes) during their physical education weeks. There were no locker rooms so students wore physical education clothes to school or asked the classroom teacher for permission to change in

the bathroom before physical education class. The classroom teacher escorted students to the gymnasium at 10:50 am and then returned at 11:30 am to pick them up from the gymnasium.

The physical education curriculum was not available during my visits to Cliffside Elementary and no curriculum links were available on the district website. Mia, the physical education teacher, described the physical education curriculum as a multi-activity curriculum. Furthermore, she explained that she teaches a variety of units (e.g., fitness, sport) and tries to rotate sport units each year to ensure that students experience a variety of sports not just common sports (for example, basketball is not offered each year). The duration of the units Mia introduced to upper elementary (i.e., fifth & sixth grade) physical education classes ranged from four days (one week of physical education) to eight days (two weeks of physical education with two weeks off in between).

Participants

Participants included 15 (9 boys, 6 girls) out of 19 fifth grade students. Also, Mia (pseudonym), the regular physical education teacher agreed to act as a participant-observer watching the students, the lesson, and the teacher-researcher. All participants returned a signed informed consent form before the first TGM Ultimate lesson.

Each of the fifth grade participants was assigned to one of four heterogeneous teams (Yellow Team, Red Team, Blue Team, and Green Team). Mia used gender and skill/effort levels in physical education to create the heterogeneous teams. Also, the teacher-researcher created team uniforms with color vests, individual numbers (attached by safety pins), and name tags and then assigned them to each participant on the first day of the unit. One of the fifth grade participants in the study was a special needs boy who

was accompanied by an assistant during the school day. Data from four students (2 boys, 2 girls) was discarded later because they had incomplete Game Performance Assessment Instrument (GPAI) scores due to an absence, medical excuse, or non-participation (e.g., improper footwear) on Day 3 and/or Day 7 of the TGM Ultimate unit.

Mia was the sole K-6 physical education teacher at Cliffside Elementary. Her main goal as a teacher was to help students find activities that they can participate in and stay physically active later on in life. Originally from Cape Verde, Mia confirmed that she held a valid physical education teaching license and had four years teaching experience (2 years middle school & 2 years elementary). Also, she shared that she had played professional soccer internationally and coaches a variety of high school sports including soccer and basketball. This study was implemented during Mia's second year at Cliffside Elementary. As part of this study, Mia volunteered to: (a) assist in study organization (e.g., create four heterogeneous teams, introduce me to classroom teachers), (b) observe each TGM lesson, (c) share her perceptions of motivation and informal assessments of improvement, and (d) discuss her opinions about the effectiveness of the TGM Ultimate lessons during fifth and sixth grade physical education classes.

Mia and I reviewed the school calendar and pinpointed a five-week period during the months of May and June. The five week period needed to include an eight-day practice unit with sixth graders and an eight-day unit for the actual study with fifth grade participants. The sixth grade class was switched from audience for the actual study to the practice unit due to: (a) the timing of upcoming physical education classes during the rotating schedule of specials classes within the select five-week period and (b) details

about end of the year field trips/special events that disrupted the regular physical education class schedule.

Practice Unit

I introduced an eight-day Tactical Games Model (TGM) Ultimate unit to the sixth grade class at Cliffside Elementary prior to teaching the eight-day unit to the fifth grade participants. The sixth grade class consisted of 20 students (11 boys, 9 girls). My goals as teacher during the practice unit were to: (a) practice planning and teaching a TGM Ultimate unit, (b) evaluate sixth grade TGM Ultimate lessons/unit plan, and (c) reflect on expected developmentally appropriate modifications needed for fifth grade Ultimate lessons/unit (actual study).

This practice unit allowed me to reflect on and improve: (a) introduction of tactical problem to be solved, (b) time management and transitions between the learning situations within the TGM sequence of (Game 1, Q & A, Practice, Game 2), and (c) question selection and statements related to motivational experiences. Late entry into site and an extended period of time for district approval prevented time for informed consent and pilot testing of data collection methods during the practice unit. Table 3.2 shows the dates for the practice unit and actual study.

Table 3.2: Five-Week Schedule of Research Study at Cliffside Elementary

Week	Grade	Purpose
Week 1 (5/14, 5/15, 5/16, 5/18)	Sixth Grade Physical Education	Practice Unit
Week 2 (5/21, 5/22, 5/23, 5/24)	Fifth Grade Physical Education	Actual Study
** Week 3** *(5/28 – 6/1)*	** NO Fifth & Sixth Grade Physical Education Classes**	**
Week 4 (6/4, 6/5, 6/6, 6/8)	Sixth Grade Physical Education	Practice Unit
Week 5 (6/11, 6/12, 6/13, 6/14)	Fifth Grade Physical Education	Actual Study

Data Collection

Mixed methods were used to investigate participant experiences during the eight Tactical Games Model (TGM) Ultimate lessons. Since this was an introduction to Ultimate, data collection tools used Ultimate Frisbee language. Data were collected from the following sources: (a) surveys, (b) daily TGM learning situation questionnaires, (c) a formal 10 minute midpoint interview with fifth grade participants, (d) three formal interviews with Mia, participant observer, (e) informal conversations with Mia, and (f) systematic coding using the Games Performance Assessment Instrument (GPAI) (Oslin, Mitchell, & Griffin, 1998). The term motivation was replaced with the following phrases: "energized to get involved" or "not energized to get involved" and "excited to learn" or "not excited to learn" for data collection tools.

Surveys

Surveys were administered to evaluate participant goals, personal interest, and situational interest on Day 2 and Day 8 of the Ultimate unit. The goal of the pre-unit survey (Appendix F) was to establish participant goal orientations, personal interest in physical education and Ultimate, and general situational interest. The pre-survey was scheduled for Day 1 but moved to the start of Day 2 due to an unexpected school activity that occurred during the regularly scheduled physical education time. Specifically, several participants arrived late because of a practice for a special end of the year choral and band event and a few more participants left class early to attend a separate practice during Day 1. Mia was not aware of this special practice event. The goal of the post-unit survey (Appendix G) was to collect information about the stability of or changes in participant goal orientations and types of interest motivation (personal and situational) at

the end of the TGM unit. The post-survey was completed on Day 8, the final day of the unit, as planned.

Surveys were placed on clipboards and spread out along the walls of the gymnasium so each participant could find their own space with survey and pencil as they entered the gymnasium before the lesson introduction. After I provided instructions to the whole class, participants were informed that I would read each statement aloud and they could follow along or work at their own pace.

Each survey consisted of eight statements. Four statements were dedicated to establishing participant goal orientations (Task and Ego). Four statements were included to determine levels of student interest (Personal and Situational). Participants were asked to circle one face from the five point smiley face Likert scale in response to each statement. The five point smiley face Likert scale was incorporated to enhance the survey. Faces were downloaded from free smiley face internet sites and then arranged in a rating scale in Microsoft Word document. From left to right the faces were arranged in the following order: face with frown and hand with big thumbs down = No Way!, face with frown = NO, face with straight line mouth = Not Sure, smiley face = Yes, and smiley face and hand with hand with big thumbs up.

Goal orientation statements reflected the common characteristics of task-oriented and ego-oriented goals identified by Nicholls (1984). Task-oriented goal statements included: *My goal is to learn as much as possible and improve my ability to play Ultimate Frisbee* (statement 5) and *I will give effort/try hard during practice time so that I can get better at Ultimate Frisbee* (statement 7). Ego-oriented goal statements included: *My goal is to become the best Ultimate Frisbee player in class* (statement 4)

and *I will compare myself to other students to check to see how good I am playing Ultimate Frisbee* (statement 6). The above questions helped categorize participants as having a task-goal orientation, ego-goal orientation, or combination/unique-goal orientation.

Interest statements focused on personal interest and situational interest and were modified from statements used in Mitchell's (1993) *Interest Survey.* Personal interest statements included: *Compared to other activities/games Ultimate Frisbee is my favorite* (statement 1) and *Ultimate Frisbee is a sport that I want to play in middle school, high school, and after I graduate from high school* (statement 8). Situational interest statements included: *I am excited to play games during the Ultimate Frisbee classes* (statement 2) and *I want to participate in activities that make me and my teammates think about ways to improve our Ultimate Frisbee playing* (statement 3). Data from surveys offered basic information that could be compared with participant self-reports and interview responses.

Daily TGM Learning Situation Questionnaires

Tactical Games Model (TGM) learning situation questionnaires (Appendix H, I, J, & K) were developed and distributed on a daily basis (i.e., Game 1 questionnaire on Day 2) to collect participant self- reports immediately after they experienced a select TGM learning situation (e.g., Game 1). The TGM learning situation questionnaire format was revised from an earlier study (Carpenter, 2004) that examined the motivational influences of the conditions/learning situations presented by the TGM sequence during a water polo invasion games unit.

TGM learning situation questionnaires were printed on colored card stock paper (size of large index card) and attached to clipboards. A color system was used to gain participant attention and manage questionnaire data. Specifically, Game 1 questionnaires were yellow, Question and Answer questionnaires were hot pink, Practice questionnaires were bright orange, and Game 2 questionnaires were fluorescent green. Twenty clipboards with questionnaire and pencil attached were placed on the ground in a safe area outside of the playing area prior to each lesson. A space was provided for name and day of the unit (announced by teacher-researcher).

At a pre-determined point in the lesson (after a pre-selected TGM learning situation), I instructed participants to find an open clipboard and provide a written response to the three questions listed on the questionnaire. Questions were read out loud and students were able to ask the teacher-researcher questions during the questionnaire. The questions stayed the same for each questionnaire with the exception of the name of the learning situation that was underlined and bolded in capital letters. For example, the Game 1 questionnaire asked the following questions: (1) *Why were you energized or not energized to get involved and play the* ***GAME 1?,*** (2) *Were you excited to learn or not excited to learn during the* ***GAME 1?****,* and (3) *What did you actually learn during* ***GAME 1****? Please give examples*.

One to two TGM learning questionnaires were presented to participants during Day 2 and Day 8 of the Ultimate unit. Reduced time on Day 1 prevented the execution of a questionnaire on Day 1 and one questionnaire was used on days with additional methods to hold to a goal to use no more than two data collection methods per 40 minute physical education class. By the end of the eight day unit, two to three TGM learning

situation questionnaires were collected for each of the four learning situations created by TGM. Table 3.3 shows the frequency of TGM learning situation questionnaires. Three Game 1 questionnaires, two Q & A questionnaires, two Situated Practice questionnaires, and three Game 2 questionnaires were administered during the eight-day TGM Ultimate unit. Color-coded folders were created to organize each TGM learning situation (e.g., Game 1 questionnaires in blue folders) to arrange completed questionnaires.

Table 3.3: Days Selected for TGM Learning Situation Questionnaires

Day of Unit	Frequency	GAME 1	Q & A	PRACTICE	GAME 2
Day 1	**0**				
Day 2	**1**	**X**			
Day 3	**2**		**X**		**X**
Day 4	**2**	**X**		**X**	
Day 5	**1**				**X**
Day 6	**1**		**X**		
Day 7	**1**			**X**	
Day 8	**1**				**X**

Formal 10-Minute Interviews with Participants

One formal interview was conducted with each fifth grade participant during the non-physical education weeks (i.e., weeks students had art and computers) between week 1 (lessons 1-4) and week 2 (lessons 5-8) of the Tactical Games Model (TGM) Ultimate unit. The Cliffside Elementary library faculty granted the teacher-researcher permission to hold the interviews at a medium sized square table in the corner of library. The fifth grade classroom teacher made arrangements for participants to sign up for interviews during their lunch period. Participants were told that they could choose to eat their lunch before, during, or after the interview.

The interviews followed a four-question protocol (Appendix L) which collected information about participant: (a) goals for unit, (b) experiences during the individual TGM learning situations (e.g., Game 1) and sequence, (c) self-assessment of

improvement, and (d) conceptions of learning. Participants were encouraged to ask questions if an interview question was not clear and a copy of the four-question protocol remained on the table during the interview so participants could read along or reread a question. Follow up probing questions asked for examples to support response if I felt that the original response was: (a) unclear and/or (b) appeared to be rushed.

A stop watch was used to monitor time and a digital tape recorder was used to record interviews so that the researcher would not have to focus on taking notes and could listen to participant responses again after the interview was complete. At the end of each 10-minute interview, participants were thanked for their time and given an Ultimate handout to take home. The handout was a two-page (front & back) fact sheet titled, *About Ultimate* produced by the Ultimate Players Association (UPA). The fact sheet was located, downloaded, and printed from the www.upa.org website. Also, the fact sheet: (a) provided a brief introduction to Ultimate, (b) reviewed basic rules, (c) offered answers to frequently asked questions, and (d) noted the spirit of the game/role of positive sporting behavior. The purpose of the handout was to keep participants excited about and encourage continued thinking about Ultimate during the non-physical education weeks. There was no follow up assessment for learning related to fact sheet because the Ultimate handout was an extra supplement added to support the unit plan.

Games Performance Assessment Instrument (GPAI)

The Games Performance Assessment Instrument (GPAI, Oslin, Mitchell, & Griffin, 1998) was used as a systematic observation tool to assess changes in game performance measures during an invasion games unit. Ultimate game play was videotaped on lessons two through eight. A tally system and formulas for performance

measures were used to guide coding for GPAI. I modified the GPAI tools published in the textbook, *Teaching Sport Concepts and Skills: A Tactical Approach,* by Griffin, Mitchell, and Oslin (1997).

The performance measures calculated on the GPAI used for the TGM Ultimate unit included: (a) Decision-Making Index (DMI), (b) Skill Execution Index (SEI), and (c) Support Index (SI). GPAI Game Involvement and Game Performance measures were also assessed during the unit. Table 3.4 shows the GPAI formulas for each of the performance measures.

Table 3.4: Formulas for GPAI Performance Measures

Game involvement = number of appropriate decisions + number of inappropriate decisions + number of efficient skill executions + number of inefficient skill executions + number of appropriate supporting movements
Decision-Making Index (DMI) = number of appropriate decisions made / number of inappropriate decisions made
Skill Execution Index (SEI) = number of efficient skill executions / number of inefficient skill executions
Support Index (SI) = number of appropriate supporting movements / number of inappropriate supporting movements
Game Performance = [DMI + SEI + SI] / 3
Source: *Teaching Sport Concepts and Skills: A Tactical Games Approach* (2006, 2nd edition) by Mitchell, Oslin & Griffin

GPAI scores were calculated for all measures and overall game involvement and game performance for each day of the Ultimate unit. A pre-test and post-test format was selected to show a week 1 assessment (Day 3) and a week 2 assessment (Day 7).

Formal Interviews with Mia, Participant-Observer

I conducted three one-hour formal/semi-structured interviews (initial, midpoint, & exit) with Mia. A separate protocol (Appendix M, N, & O) was developed for each of the formal interviews. The purpose of the interviews was to obtain Mia's informal assessments of participant motivation, improvement, and learning while observing the

sixth grade (practice unit) and fifth grade (actual study) Tactical Games Model (TGM) Ultimate lessons/units.

As a way to encourage deeper reflection, Mia was supplied with a copy of each interview protocol at least 24 hours before an upcoming interview. The timing of each interview came before or after a week of fifth grade TGM Ultimate. The initial interview was conducted after the completion of week one of the sixth grade TGM Ultimate unit (practice unit) and before the first week of the fifth grade TGM Ultimate unit (actual study). The midpoint interview was conducted after the first week of the fifth grade TGM Ultimate unit (actual study) and before the second week of both the sixth and fifth grade units. The exit interview occurred once the fifth grade TGM Ultimate unit (actual study) was completed at Cliffside Elementary. In addition to sharing her observations and informal assessments during the formal interviews, Mia was asked to evaluate each participant's level of motivation, improvement, and learning during the unit.

Informal Conversations with Mia, Participant-Observer

Mia and I had informal conversations before and after most TGM Ultimate lessons. Conversations were not scheduled and sometimes there was no conversation due to time and/or other responsibilities. I initiated most conversations and common questions sought Mia's opinion about an event (e.g., student diving to catch Frisbee) that occurred during class. Additional conversations revolved around her general comments/feedback about something she liked and/or felt worked or did not work during the TGM Ultimate lesson. On several occasions, conversations revisited an important event (e.g., participant/team encountered success or faced challenge) or a topic related to participant motivation, improvement, and/or evidence of learning. After each informal conversation,

I recorded interesting comments made or questions posed by Mia in the daily notes section of my teacher-researcher journal.

Data Analysis

Data were organized to inform researcher description, conceptual ordering, and theorizing (Strauss & Corbin, 1998) of changes in participant motivation during the TGM learning situations (Game 1, Q & A, Situated Practice, and Game 2). Examples of analysis occurring during the study was teacher-researcher attempts to answer research questions in researcher journal after each visit to Cliffside Elementary during the five week study. Data analysis continued over the course of a two year period to test and retest categories, dimensions, and themes.

I used four strategies to analyze data: (a) coding, (b) visual representations, (c) classifying, and (d) theoretical comparisons. Pseudonyms were assigned to the school district, school site, the physical education teacher acting as participant-observer, and the fifth grade participants.

Open and Axial Coding

Materials coded during data analysis include: (a) researcher field notes, (b) tables with responses to individual daily TGM questionnaires in a table, (c) transcripts from formal student interviews, (d) transcripts from formal participant-observer interviews, (e) tallied responses to surveys, and (f) notes from focus group interviews. Types of coding incorporated in the data analysis process included: (a) open coding, (b) axial coding, (c) selective coding, and (d) coding using instruments.

Open Coding

Open coding (Creswell, 1998; Strauss & Corbin, 1998) included conceptualizing, defining categories, and developing categories. Grouping important concepts into categories helped reduce the number of concepts and addressed phenomena. Properties and dimensions were developed for each category.

Axial Coding

Axial coding (Creswell 1998; Strauss & Corbin, 1998) identified the potential relationships between established categories by linking subcategories.
Use of questions about when, where, why, who, and how were incorporated into the analysis process to expand concepts.

Selective Coding

Selective coding (Creswell 1998; Strauss & Corbin, 1998) was used to integrate and refine established categories to form a theory. Story lines were considered to help establish categories. A central category was identified through story lines and then an initial theory was generated. Refinement of the theory included eliminating poorly developed categories and asking a critical friend about a developing theory.

Systematic Coding with GPAI Instrument

The Game Performance Assessment Instrument (GPAI, Oslin, Mitchell, & Griffin, 1998) was used the second time the teacher-researcher watched videotaped lessons. The goal was to code student performance measures (e.g., decision-making, skill execution, and support). Also, game involvement and game performance measures were calculated to form a larger picture of student performance. Day 3 and Day 7 were selected for GPAI coding because they both had a Game 1 and Game 2 (Day 1 and Day 2 did not include a Game 2) that presented similar modified games (i.e., 4 vs. 4 small sided

games). Also, the total amount of game time was similar for both Day 3 (15 minutes) and Day 7 (16.5 minutes). Table 3.5 shows the amount of time students spent in small-sided games playing during each of the 40 minute Ultimate lessons.

Table 3.5: Types & Duration of Game 1 & Game 2) during the Ultimate Unit

Day & Location	**DAY 1** (Gym)	**DAY 2** (Field)	**DAY 3** (Field)	**DAY 4** (Field)	**DAY 5** (Field)	**DAY 6** (Field)	**DAY 7** (Blacktop)	**DAY 8** (Field)
GAME 1	4 vs. 4 (5 min)	4 vs. 4 (5 min)	2 vs. 2 (7 min)	4 vs. 4 (10 min)	4 vs. 4 (9.5 min)	4 vs. 4 (10 min)	4 vs. 4 (7.5 min)	4 vs. 4 (7 min)
	+	+	+	+	+	+	+	+
GAME 2	*No GAME 2*	*No GAME 2*	4 vs. 4 (8 min)	4 vs. 4 (6.5 min)	4 vs. 4 (6.5 min)	4 vs. 4 (7 min)	4 vs. 4 (9 min)	4 vs. 4 (6 min)
	=	=	=	=	=	=	=	=
Total Game Play	5 minutes total	5 minutes total	15 minutes total	16.5 minutes Total	16 minutes total	17 minutes total	16.5 minutes total	13 minutes total

Average amount of games playing per 40 minute Ultimate lesson was 13 minutes. Daily TGM lessons included: welcome and introduction of tactical problem, Game 1, Q & A session, one to two Practice tasks, and a Game 2 (except for Day 1 and Day 2 due to unexpected events and additional management tasks). One to two data collection methods were included in each lesson.

Visual representations

Visual representations were used frequently to simplify concepts and further test main categories and dimensions generated through coding. Examples of important visual representations included concept mapping, conditional matrixes, and figures and graphs.

Concept mapping

Concept mapping was used regularly to produce visual representations of categories and themes to expand on initial analysis. Rossman and Rallis (2003) identified concept mapping as an effective way to brainstorm important ideas. Each category was placed into graphic organizers on large sticky posters and explored to see how much

support was available in the data set before being added to a matrix of main categories. Microsoft Word SmartArt graphic organizers and Inspiration 9 Software were used as tools to further illustrate major themes, categories, and dimensions. Concept mapping also assisted in determining axial links between major categories.

Descriptive Statistics

Tables and graphs were created using Microsoft Word and Excel to plot data from: (a) survey tallies, (b) changes in individual measures and overall game performance scores, and (c) changes in mean scores for game performance measures and overall game performance scores. Participant Likert scale ratings on pre- and post-surveys were displayed using excel graphs and means were graphed for goals, personal interest in Ultimate, gender, and skill/effort levels. Also, line graphs were developed to plot changes in individual measures (e.g., skill execution) and overall game performance on Game Performance Assessment Instrument (GPAI) grids.

Classifying

Classifying was used to group student data into profiles and cases. Participant motivational profiles were constructed from background information shared in self-reports, unique characteristics offered by Mia, and other data collected from instruments. General background information included any notes about student prior knowledge or experiences received from participant or Mia. Unique characteristics related to types of goal orientations and personal interest in Ultimate gathered from surveys. Interesting quotes about goals, interest, and perceived competence were gathered during interviews. Motivational profiles helped learn about the participants and how they approached the

Ultimate unit. Eventually individual motivational profiles were added into grids and tables as a way to compare data from individual fifth grader profiles side by side.

Theoretical Comparisons

Theoretical sampling (Strauss & Corbin, 1998) was used to compare the notion of "it depends on the situation" with other concepts and theories to help describe situational interest motivation within the Tactical Games Model (TGM) sequence. Also, the concept of deconstruction and reconstruction were constantly revisited to make sense of the whole-part-whole process used by TGM sequence. The metaphor of jigsaw puzzle (e.g., 1000 piece jigsaw puzzle) was explored to help view the many factors included in the construction process of the whole-part-whole TGM sequence. Specifically, concepts were aligned with: (a) selecting the puzzle, (b) identifying and grouping important pieces of the puzzle, and (c) then connecting larger sections of the puzzle. In addition, the analogy of student learning in TGM is like learning to play chess was explored because TGM emphasizes thinking (cognitive) and moving (psychomotor) outcomes. The connection to chess was considered to stress that it is unheard of to move without thinking ahead in the game of chess. These theoretical comparisons helped the teacher-researcher brainstorm ideas for helping teachers make sense of situational interest and shape a meaningful guide for action to support teacher experimentation with TGM and to learn about the constructivist nature of TGM.

Trustworthiness

Striking a balance between objectivity and sensitivity (Strauss & Corbin, 1998) as a researcher and ensuring a high level of trustworthiness were important considerations for this study. I established trustworthiness using the following eight techniques: 1)

researcher profile, 2) amount of time in the field, 3) triangulation of data, 4) researcher journal, 5) documentation of TGM planning and implementation, 6) communications with a TGM critical friend, 7) outside member checks, and 8) observer-reliability agreement.

Time in the Field

This Tactical Games Model (TGM) study focused on a five week period during the school year. Time in the field was considered a priority to ensure trustworthiness (Rossman & Rallis, 2003) in this qualitative study so I: (a) entered the site early as a visitor/observer, (b) arrived to school early and stayed for a little while after each lesson, and (c) planned and taught two eight-day Ultimate units. First, I gained entrance a few weeks earlier to observe and assist Mia with a sixth grade bowling lesson. This allowed me to better understand school climate, observe Mia's teaching, and learn more about the fifth and sixth grade physical education classes. Second, I arrived to the site early each day to set up video and audio equipment as well as organize physical education equipment and space. Arriving to the site early and staying later allowed for extra time to talk with Mia about topics related to (e.g., ideas for future lessons) and unrelated to (e.g., World Cup 2010) my work as teacher-researcher. Finally, two weeks were dedicated to the practice unit (sixth grade), two weeks were needed for the actual study (fifth grade), and participant interviews were conducted during the non-physical education week.

An unexpected extension of the sixth grade Ultimate unit (practice unit) was helping Nate, the school principal and Mia organize the sixth grade versus faculty Ultimate game for the last day of school. I agreed to become the coach for the sixth graders and the game was played on the last day of school during the school wide field

day. Sixth graders and faculty involved in the game communicated that the game was a success.

Multiple Data Sources

Data from multiple sources allowed for researcher triangulation of data. Sources included: (a) participant self-reports and self assessments, (b) Mia observations and informal assessments, and (c) Game Performance Assessment Instrument (GPAI) scores. Teacher-researcher field notes from lesson video review were also reviewed during analysis. An example of triangulation within this study was analyzing the similarities and differences between student self-assessments of improvement, participant-observer informal assessments of participant improvements, and GPAI scores.

Researcher Journal

A researcher journal (composition book) was used to capture details about both the research process and the teaching process during the TGM ultimate unit. Main goals for maintaining the journal included: (a) highlight key events that occurred before, during, and after Ultimate lessons, (b) match actual events and reflections to research questions, and (c) perform initial analysis of teacher and student data. The journal was helpful in safeguarding teacher-researcher big ideas that were originally written in a notebook, post-its, index cards, and posters.

Documentation of Faithful TGM Planning and Implementation

This Tactical Games Model (TGM) planning section was added to show that a "reasonable version" (Metzler, 2005, p. 191) of TGM was used for the Ultimate unit. An eight-day block plan was developed for both the sixth grade and fifth grade Ultimate units (Appendix Q). The fifth grade unit was modified (e.g., less defensive concepts)

from the original block plan for sixth grade. Also, daily lesson plans (Appendix R-Y) were generated before each TGM Ultimate lesson. Each lesson was printed, placed in a large binder, and a copy was shared with Mia so she could have a record of each lesson.

The following resources were used to guide teacher-researcher TGM planning and teaching during the Ultimate unit: (a) modified TGM lesson plan format based on resources in Mitchell, Oslin, & Griffin (2003) and (b) TGM sample invasion games lesson plans. First, a modified TGM lesson plan format served as the daily lesson plan structure. Second, sample TGM lesson plans presented for the invasion games category (e.g., basketball, soccer, field hockey, lacrosse) within TGM books (e.g., *Teaching Sport Concepts and Skills: A Tactical Games Approach* by Mitchell, Oslin, & Griffin, 2006) were reviewed during the early planning stages for TGM Ultimate.

Finally, the following steps were taken to aid in the verification of faithful teacher-researcher TGM implementation: (a) teacher-researcher self-assessment using a modified version (Appendix Z) of the TGM Teacher Performance Checklist (Fisette, Bohler, Carpenter, & Griffin, 2006), (b) consultation with Linda Griffin, a TGM expert before, during, and after units, (c) reference to benchmarks for teacher use of TGM (Metzler, 2005, pgs. 422-423), and (d) creation of a DVD with video clips that highlight teacher-researcher teaching during different TGM learning situations throughout the unit.

Critical TGM Friends/Professionals

Feedback about early diagrams, developing theories, and draft results were shared with a critical friend familiar with the Tactical Games Model (TGM). Also, she helped clarify some of the Game Performance Assessment Instrument (GPAI) definitions for criteria and calculations (e.g., describing changes in game involvement). In addition,

early results were presented to and feedback was gathered from other physical education professionals at the Fourth Annual International Teaching Games for Understanding (TGfU) Conference in Vancouver, Canada in May 2008.

Outside Member Checks

The purpose of the outside member checks was to share early findings with preservice and inservice physical education teachers who were learning about, experimenting with, and/or continuing to use the Tactical Games Model (TGM). This process occurred during: (a) coursework at Salisbury University, (b) physical education conferences (e.g., Eastern District Association, EDA, 2009), and (c) professional development sessions with secondary physical education teachers in Maryland. Also, outside members were asked their opinion about specific visual representations, general topics related to student motivation in their physical education classes, and draft forms of a TGM Guidebook being developed as part of this dissertation.

Observer-Reliability

Instruments for coding individual student performance measures (i.e., decision-making, skill execution-throwing, skill-execution-catching, and support) in this study were built using Game Performance Assessment Instrument (GPAI) resources in the Tactical Games Model (TGM) literature (Mitchell, Oslin, & Griffin, 2006). After completion of initial teacher-researcher GPAI coding for all participants using videotaped lessons, a TGM critical friend was asked to help with inter-observer reliability coding. Intra-observer and inter-observer coding reviewed videotaped lessons for 53 percent of participants (8 out of 15 participants), 50 percent of teams (two out of four teams), and 43 percent of games playing (6 out of 14 games).

Due to hard to see uniform numbers, the teacher-researcher and TGM critical friend coded at individual tables (to establish physical distance between observers) at the same time in the same room so the teacher-researcher could clarify the participant being coded if needed during the coding process. Both the teacher-researcher and the TGM critical friend watched the same clip, coded independently, and were allowed to request a rewind of video for any event once or multiple times for accuracy of code. In some cases, additional viewings led to agreement while other viewings solidified disagreement between teacher-researcher and the TGM critical friend. Time frame for inter-observer coding ranged from three to four hours per game performance measure (e.g., decision-making). Game performance measures coded for GPAI included: (a) skill execution-passing (SEI-Pass), (b) skill execution-receiving (SEI-Receive), (c) decision-making (DMI), and (d) support (SI). No more than one measure was coded per day so coding was completed over the course of four separate days.

Steps for establishing observer-reliability and determining percent of inter-observer agreement were based on the chapter titled, *Observer Reliability: Issues and Procedures* by van der Mars (1989). For examples, the following equation was used to calculate inter-observer agreement in accordance to van der Mars's chapter:

$$\frac{\text{Agreements}}{\text{Agreements + Disagreements}} \times 100$$

Overall average inter-observer agreement for number of events was between 95 and 100 % for most measures (decision-making, skill-execution passing, skill-execution receiving, and support). Overall average inter-observer agreement for quality of

performance was between 90 – 100 % for most measures (decision-making, skill-execution passing, skill-execution receiving, and support).

Tables were created to share the process used for calculating percentage of inter-observer agreement for both number of events and quality of performance for Day 4 of Ultimate unit. "A" represents the teacher researcher and "B" represents the TGM critical friend. Table 3.6 shows the percentage of agreement for number of events that occurred and Table 3.7 the percentage of agreement on quality of performance.

Table 3.6: Grid for % of Inter-Observer Agreement on Number of Events (i.e., DAY 4)

NAME	**DMI**			**SEI – Throw**			**SEI - Catch**			**Support**		
	A	**B**	**%**	**A**	**B**	**%**	**A**	**B**	**%**	**A**	**B**	**%**
Charlie	3	3	100	3	3	100	5	5	100	45	44	98
Ethan	11	11	100	13	13	100	14	14	100	38	38	100
Todd	28	28	100	28	28	100	6	6	100	20	20	100
Helen	7	7	100	7	7	100	7	7	100	43	43	100
Amy	19	18	95	17	17	100	10	10	100	35	35	100
Celine	14	14	100	14	14	100	12	12	100	47	47	100
Jeff	6	6	100	9	6	67	7	7	100	47	47	100
Trevor	13	13	100	12	13	92.3	5	5	100	36	36	100
Average	***99.3 %***			***95 %***			***100 %***			***100 %***		

Table 3.7: % Inter-Observer Agreement for Quality of Performance (DAY 4)

NAME	**DMI**			**SEI – Throw**			**SEI - Catch**			**Support**		
	A	**B**	**%**	**A**	**B**	**%**	**A**	**B**	**%**	**A**	**B**	**%**
Charlie	A = 1 I = 2	A = 1 I = 2	100	E = 2 IE= 1	E = 2 EI= 1	100	E = 4 EI= 1	E = 4 EI= 1	100	A=38 I = 7	A=41 I=3	91.1
Ethan	A=10 I = 1	A = 9 I = 2	90.9	E = 9 EI= 4	E = 8 EI= 5	92.3	E = 7 EI= 7	E = 8 EI= 6	93	A=38 I = 0	A=38 I = 0	100
Todd	A=23 I = 5	A=23 I = 5	100	E= 19 EI= 9	E= 19 EI= 9	100	E = 6 EI= 0	E = 5 EI= 1	83.3	A=20 I = 0	A=20 I = 0	100
Helen	A = 7 I = 0	A = 7 I = 0	100	E = 4 EI= 3	E = 4 EI= 3	100	E = 5 EI= 2	E = 5 EI= 2	100	A=42 I = 1	A=43 I=0	98
Amy	A=15 I = 4	A=13 I = 5	89.4	E=11 EI= 6	E=11 EI= 6	100	E = 9 EI= 1	E = 9 EI= 1	100	A=35 I = 0	A=35 I = 0	100
Celine	A=12 I = 2	A=12 I = 2	100	E = 9 EI= 5	E = 9 EI= 5	100	E= 10 EI= 2	E= 10 EI= 2	100	A=42 I = 5	A=44 I = 3	96
Jeff	A = 5 I = 1	A = 5 I = 1	100	E = 7 EI= 2	E = 5 EI= 1	67	E = 6 EI= 1	E = 6 EI= 1	100	A=45 I = 2	A=46 I = 1	98
Trevor	A=10 I = 3	A=10 I = 3	100	E= 10 EI= 2	E= 10 EI= 3	92.3	E = 4 EI= 1	E = 4 EI= 1	100	A=34 I = 2	A=34 I = 2	100
Average	***98 %***			***94 %***			***97 %***			***98 %***		

CHAPTER 4

RESULTS

The Tactical Games Model (TGM, Griffin, Mitchell, & Oslin, 1997) is a constructivist approach to teaching and learning sport (Ennis, Griffin, & Rovegno, 2006). Advocates of TGM credit the constructivist nature of the model (e.g., player becomes problem solver within game-like situations) as a key catalyst for increased student motivation and enhanced learning during TGM sport units (Griffin, Butler, Lombardo, & Nastasi, 2003; Griffin & Patton, 2005; Mitchell, Oslin, Griffin, 2006). Few studies have investigated the influence of TGM's constructivist conditions/learning situations (Game 1, Q & A, Situated Practice, and Game 2) on student motivation (Griffin, Brooker, & Patton, 2005; Rink, 1996, 2001).

This study used situational interest motivation theory (Chen, Darst, & Pangrazi, 1999; Deci, 1992; Griffin, Brooker, & Patton, 2005; Krapp, Hidi, & Renninger, 1992; Mitchell, 1993) to examine participant – learning situation experiences during a TGM sport unit. Research questions were: (a) How do the conditions/learning situations created by TGM (Game 1, Q&A, Practice, and Game 2) influence participant motivation?, (b) To what extent are participants motivated to improve their skills, decision-making, and support during a TGM unit?, and (c) To what extent are participants motivated to improve their games playing during a TGM unit? Examples of participant motivation to get involved in learning situations, motivation to stay involved in learning situations, and perceived improvement in games playing are discussed to better understand participant sport experiences during an eight-day Ultimate unit.

Findings show that participants': (a) participated in daily lessons regardless of gender, goal orientation, skill/effort level, and personal interest in Ultimate, (b) were excited to play games (Game 1, Game 2) because they wanted to move and exercise, liked Ultimate, and/or wanted to assess their skills/playing, (c) required challenging real-life conditions, positive competition, and/or individual/team success in order to have a positive participant-games playing experience, (d) entered Q & A and Practice situations expecting to learn something new, (e) stayed interested in Q & A if they received answers to questions, learned facts/rules, and/or felt the discussion helped team, (f) remained involved in a Practice if team worked well, task was fun/new, and/or they taught/learned a new skill/strategy, and (g) perceived improvements in aspects of their games playing (e.g., throwing). Mia concluded that participants: (a) were motivated to play and learn about Ultimate, (b) were involved in the different TGM learning situations, (c) improved their overall games playing, and (d) learned about the importance of teamwork.

Games Performance Assessment Instrument (GPAI, Oslin, Mitchell, & Griffin, 1998) scores confirmed that participants' improved at least one area of game performance (e.g., skill execution-passing) between Day 3 (week 1) and Day 7 (week 2) of the eight-day TGM Ultimate unit. Excerpts from participant self-reports and self-assessments, Mia's observations and informal assessments, and GPAI scores (e.g., skill execution-passing) are included in this chapter to support the main findings and illustrate participant TGM sport experiences.

This chapter is divided into four sections. Chapter sections include: 1) Goal Orientations and Personal Interest in Ultimate, 2) Situational Interest within the TGM Sequence, 3) Perceived Competence in Playing Ultimate, and 4) Game Performance

during Ultimate Games. Each section contributed to a comprehensive picture of participant sport experiences within a TGM unit. The first section, *Goal Orientations and Personal Interest in Ultimate* establishes broad participant motivational profiles. Motivation profiles show trends for participant gender, goal orientation, personal interest in Ultimate, and skill/effort level during a TGM unit.

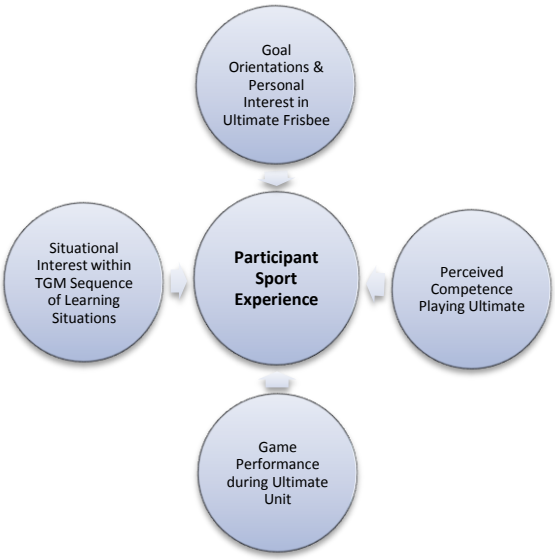
The second section, *Situational Interest within the TGM Sequence* describes the factors influencing participant – learning situation experiences during a TGM sport unit. Reasons why participants were motivated to get involved and reasons why participants remained involved during a TGM learning situation are highlighted in this section. An instance of situational interest motivation was defined as a positive participant – learning situation experience. This section details: (a) participant – games playing (Game 1, Game 2) experiences, (b) participant – question and answer (Q & A) experiences, and (c) participant – practice (Situated Practice) experiences.

The third section, *Perceived Competence in Playing Ultimate* outlines areas of participant perceived improvement in games playing that participants identified during self-assessment. Examples of participant self-perceptions of competence/perceived competence in playing Ultimate include improvements in different aspects of games playing: (a) skills, (b) movement, and/or (c) decision-making. Mia's informal assessments of participant improvements in games playing support many participant self-assessment reports.

The fourth section, *Game Performance during Ultimate Games* presents participant scores from Game Performance Assessment Instrument (GPAI) calculations for game performance measures and overall game performance during Ultimate games.

GPAI scores are compared with participant self-assessment and Mia's informal assessments. Figure 3 outlines the parts that were considered to be important to the larger participant TGM sport experience.

Figure 3: Parts of a Participant TGM Sport Experience



Goal Orientations and Personal Interest in Ultimate

According to Veal and Compagnone (1995), educators must consider that students enter schools and classes with different motivations for learning. Goal orientations (individual goals for success) and personal interests (general likes and dislikes) are broad structures used to describe student motivation. Nicholls (1984) identified common goal orientations (task-goal orientation, ego-goal orientation) that individuals use to define success when entering an experience. He explained that task-oriented students prioritize applying effort and continued learning as the most important goals while ego-oriented students strive to outperform classmates and demonstrate superior performance (e.g., becoming the best player). Like goals, personal interest is often used to determine how students approach a class activity or subject matter. For

instance, some researchers (Krapp, Hidi, & Renninger, 1992) proposed that individuals will put forth effort in an activity that personally interests them.

Participant goals and personal interest were considered factors that could influence a sport experience. Findings for goal orientations and personal interest in this Tactical Games Model (TGM) study established that participants': (a) held different combinations of goal orientations and personal interest and (b) participated in daily lessons regardless of gender, goal orientation, personal interest in Ultimate, and skill/effort level classification. The following paragraphs outline broad participant motivational profiles and describe profile impact on participation rates.

Motivational Profiles

Gender, type of goal orientation (i.e., task, ego, unique), level of personal interest in Ultimate (i.e., personal interest, no personal interest), and skill/effort level descriptions (i.e., shy/frequent non-participant, high effort participant, class athlete) provided background information for participant motivational profiles. Participant comments during interviews and written responses on surveys detailed their goals for success during the unit and described their level of personal interest in future involvement in Ultimate. Mia used skill/effort level categories to describe members of the heterogeneous teams she organized for the Ultimate unit.

Both task- and ego-goal orientations were visible as well as personal interest in and no personal interest in Ultimate. Table 4.1 provides an overview of broad participant motivational profiles to show trends in participant gender, goal orientation, personal interest, and skill/effort level description.

Table 4.1: Overview of Types of Participant Motivational Profiles

Type of Goal Orientation & Level of Personal Interest (PI)	Common Description of Participant Skill/Effort Level in Physical Education (PE) Class Before Study (*Used by Mia to Build Heterogeneous Teams*)	# of Participants that Fit Motivational Profile		% of Sample
		9 Participants		
Task Goals	***Participant described as:***	**6 Girls**	**3 Boys**	**60 %**
Task Goals + PI	Shy/Frequent Non-Participant in PE	1 (Celine)	2 (Charlie, Trevor)	20 %
	High Effort Participant in PE	2 (Emma, Jill)	1 (Ethan)	20 %
	Class Athlete in PE	1 (Amy)	-	7 %
Task Goals w/ NO PI	Shy/Frequent Non-Participant in PE	2 (Helen, Kristina)	-	13 %
	High Effort Participant in PE	-	-	-
	Class Athlete in PE	-	-	-
		5 Participants		
Ego Goals	***Participant described as:***	**0 Girls**	**5 Boys**	**33 %**
Ego Goals + PI	Shy/Frequent Non-Participant in PE	-	-	-
	High Effort Participant in PE	-	-	-
	Class Athlete in PE	-	-	-
Ego Goals w/ NO PI	Shy/Frequent Non-Participant in PE	-	-	-
	High Effort Participant in PE	-	1 (Jeff)	7 %
	Class Athlete in PE	-	4 (Todd, Brad, Marcus, Alex)	26 %
		1 Participants		
Unique Goals	***Participant described as:***	**0 Girls**	**1 Boy**	**7 %**
Unique Goals + PI	Shy/Frequent Non-Participant in PE	-	-	-
	High Effort Participant in PE	-	-	-
	Class Athlete in PE	-	-	-
Unique Goals w/ NO PI	Shy/Frequent Non-Participant in PE	-	1 (Henry)	7 %
	High Effort Participant in PE	-	-	-
	Class Athlete in PE	-	-	-

Goal Orientations:
Task Goals = Consistent focus on learning and improvement & rejection of goals to be best/better than others
Ego Goals = Wrote or said that they wanted to be the best and/or better than others at midpoint or post-survey
Unique Goals = Unique explanation for why they selected or did not select particular goals

Personal Interest:
+ PI = Personal Interest in Future Involvement in Ultimate
w/ NO PI = No Personal Interest in Future Involvement in Ultimate

Common Descriptions of Skill/Effort Levels used by Mia:
Shy/Frequent Non-Participant in PE Class = Mia described these participants as not involved in regular PE class because they were timid, low effort, and/or low interest during physical education classes

High effort participant in PE Class = Mia described these participants as always participating and applying effort during physical education classes regardless of activity

Class Athlete in PE Class = Mia described these participants as having a high level of confidence and consistent success in each activity/sport being introduced during physical education classes

Task-oriented participants communicated that they were trying hard, focused on getting better, and rejected goals to be the best and be better than others. Nine

participants (3 boys, 6 girls) were classified as having a task-goal orientation. A majority of these task-oriented boys and girls were described by Mia as the shy/frequent non-participants in physical education. One exception to this pattern of task-oriented participants was Amy, the only girl Mia placed in the class athlete category.

Six of the eight task-oriented participants indicated that they had a personal interest in future involvement in Ultimate. Two task-oriented girls (Helen & Kristina) communicated that they were working hard but did not hold a personal interest in future involvement in Ultimate. Ego- and unique- goal orientations were also visible in participant motivational profiles.

Five participants (5 boys) held an ego-goal orientation based on their comments and circled statements indicating that their main goal was to become better than their classmates and/or be the best participant during the Ultimate unit. All of the ego-oriented participants were boys who reported having no personal interest in future involvement in Ultimate. Also, four out of the five ego-oriented boys with no personal interest in Ultimate were considered to be class athletes. The fifth ego-oriented boy (Jeff) was the only high effort participant classified as being ego-oriented with no personal interest.

Unlike a majority of participants who identified themselves having a task- or ego-goal orientation, one participant (1 boy) held a unique goal for success during the unit. Henry, a boy with special needs consistently responded "not sure" to survey statements asking about types of individual goals. Also, he offered his own unique goal during the 10-minute midpoint interview. Henry stated: "I don't want to be better than others I just want to be the equal to them." Mia identified Henry as a frequent non-participant in physical education class.

Daily Participation

Results showed that type of motivational profile did not affect participation rates during the daily Ultimate lessons. Mia, the regular physical education teacher and participant observer, described maximum participation during lessons and throughout the Tactical Games Model (TGM) sequence of learning situations (Game 1, Q&A, Practice, and Game 2). Also, teacher-researcher review of videotaped lessons confirmed that all participants were participating during daily lessons.

After the first week of the Ultimate unit, Mia determined that participants had demonstrated high levels of motivation during the Ultimate lessons. She stated: "I definitely think this is one of those things where these kids are going all the way". Mia explained that she used continuous movement and involvement in each part of the TGM sequence of learning situations (Game 1, Q & A, Practice, and Game 2) as the key criteria for determining whether or not a participant was motivated during physical education classes. Upon completion of the eight-day unit, she concluded: "I would say 90 % of the class was incredibly motivated every time [lesson] it's just a select few that walked around". Furthermore, Mia expressed that she was surprised to see some of her shy/frequent non-participants actively involved throughout the TGM Ultimate unit.

As the regular physical education teacher, Mia was able to compare participant past participation rates in sport units with participation during the TGM Ultimate unit. She stated that she expected that the class athletes would be participating and was surprised to see participants like Helen and Trevor participating in daily Ultimate lessons. Original skill/effort level categories assigned by Mia prior to the unit were reconsidered

during the TGM sport experience. She noticed that her shy/frequent non-participants in physical education became really excited and involved during the Ultimate unit.

Mia explained that participants like Henry, a special needs participant considered lower skilled and Charlie, another lower skilled participant were moving and participating much more than in previous physical education sport units. For example, Mia stated: "To give you an example to see Charlie moving which he doesn't do that much, to see Henry participate and his passes are as flat as anyone else, as flat as Brad or Marcus". Her list of shy/frequent non-participants who were participating more than usual also included Helen, Trevor, and Celine.

According to Mia, Helen and Trevor were participants who became very involved in the Ultimate lessons and unit compared to previous sport units. Specifically, she explained that these two participants applied what she determined to be very low effort during physical education class. Mia described their increased participation in the following statement: "I expected Alex, Todd, Brad, and Marcus to do fabulous at this game but these kids like Trevor, he's all into as well, and Helen too." She dedicated time during interviews to discuss Celine's participation during the Ultimate unit.

Celine was identified as another shy/frequent non-participant who stood out during the Ultimate lessons. Mia offered the following statement to contrast Celine's past participation with participation during the Ultimate unit: "This is a girl who was running away from the ball rather than catch it (during kickball) and now to see her actually catch a Frisbee and moving around". The following comment summed up Mia's observations of shy/frequent non-participants becoming active participants during the Ultimate unit:

> It has been incredible to see some of these kids who when we play sport they, if its anything that's coming towards them rather than put their hands out to shield their body they sort of just step to the side and let it fall … but to actually see them getting involved, and catching, and moving and just them having fun out there, it's nice, it's a good thing to see.

Teacher-researcher review of videotaped Ultimate lessons supported Mia's positive comments about overall participant participation during the TGM learning situations (Game 1, Q&A, Practice, and Game 2). Video review of daily lessons confirmed that the only participants not participating in a lesson/TGM learning situation had either a medical excuse (e.g., boy with medical excuse in wheelchair) or were asked to sit out because they were not prepared to move safely (e.g., girl wearing flip-flops to school).

Summary of Motivational Profiles and Daily Participation

Survey responses and interview statements established that participants held different goal orientations (task, ego, unique) and levels of personal interest in Ultimate (personal interest, no personal interest) during the eight-day unit. Mia's observations and teacher-researcher video review confirmed that all participants including the shy/frequent non-participants in physical education were participating in daily Ultimate lessons.

Closer examination of participant experiences during the Ultimate lessons showed that even though there was a high level of participation among participants, certain factors influenced participant motivation to get involved in and stay involved in a TGM learning situation. Specifically, self-reports explained that participant participation (e.g., movement) during a TGM learning situation (Game 1, Q & A, Practice, and Game 2) did not automatically mean they were tuned in, fully involved, and having a positive participant – learning situation experience (instance of situational interest motivation).

Situational Interest within the TGM Sequence

The Tactical Games Model (TGM) has the potential to create what Hidi, Renninger, and Krapp (2004) referred to as the conditions/learning situations and environment needed to support motivated and successful learners. Each of the TGM learning situations (Game 1, Q & A, Practice, and Game 2) provides an opportunity for a positive participant – learning situation experience (instance of situational interest motivation). Although participant - learning situation experiences varied day to day, a number of factors influenced whether or not a participant had a positive or negative learning situation experience.

Participants were continuously asked to explain why they were motivated ('energized') or not motivated ('not energized') to get involved in and what motivated ('energized', 'excited to learn') them to stay involved in a learning situation. Surveys provided a window into broad viewpoints about interest in different learning situations. Responses to daily learning situation questionnaires and statements made during midpoint interviews offered a detailed picture of how participants perceived their motivation entering into and motivation during a specific TGM learning situation (e.g., Game 1, Q & A, Practice, Game 2) throughout the unit. In order to better understand participant requirements for instances of situational interest (positive participant – learning situation experiences), interest motivation results are described for the following experiences: (a) participant – games playing (Game 1, Game 2) experiences, (b) participant – question and answer (Q & A) experiences, and (c) participant – practice (Situated Practice) experiences.

Participant – Games Playing Experiences

Small-sided games are essential learning situations (i.e., Game 1, Game 2) within the Tactical Games Model (TGM) lesson sequence. In addition, playing games is considered a motivating feature of sport lessons. The following paragraphs describe the factors influencing participant - games playing experiences during the TGM Ultimate unit. All participants had at least one positive participant - games playing experience during the Ultimate unit.

Surveys asked participants' to rate games playing situation statements using a smiley face Likert scale (e.g., smiley face with thumbs up = yes definitely, frown with thumbs down = no way). Games playing statements on surveys included: *I am excited to play games during the Ultimate Frisbee classes* (pre-survey) and *I was excited to play games during the Ultimate Frisbee classes* (post-survey). Ratings established that there was a common interest in games playing situations among participants. Table 4.2 lists participant ratings for interest in playing games during the Ultimate unit.

A majority of participants finished the Ultimate unit with a strong to very strong interest in games playing situations. Twelve participants (7 boys, 5 girls) maintained or increased to a strong ("Yes") or a very strong ("Yes Definitely") rating for interest in playing games between Day 2 (pre-survey) and Day 8 (post-survey) of the unit. Two participants (1 boy, 1 girl) decreased from a strong rating to a neutral rating ("Not Sure") and one participant (1 boy) decreased from a very strong interest to a weak ("No") interest in playing games.

Table 4.2: Participant Situational Interest (SI) Ratings for Games Playing Situations

Situational Interest (SI) Ratings for Games Playing	# of Participants		Pre-Survey Rating (Day 2)	Post-Survey Rating (Day 8)
	Girls	Boys		
Maintained Very Strong SI (No change in rating)	*4 participants*		Yes Definitely	Yes Definitely
	2 (Amy, Jill)	2 (Charlie, Ethan)		
Increased to Very Strong SI (+ 1 change)	*4 participants*		Yes	Yes Definitely
	1 (Emma)	3 (Brad, Marcus, Trevor)		
Increased to Very Strong SI (+2 change)	*1 participant*		Not sure	Yes Definitely
	1 (Celine)	0		
Maintained Strong SI (No change in rating)	*1 participant*		Yes	Yes
	1 (Kristina)	0		
Increased to Strong SI (+ 1 change)	*1 participant*		Not sure	Yes
	0	1 (Jeff)		
Decreased to Strong SI (- 1 change)	*1 participant*		Yes Definitely	Yes
	0	1 (Todd)		
Decreased to Neutral rating (- 1 change)	*2 participants*		Yes	Not sure
	1 (Helen)	1 (Henry)		
Decreased to Weak SI (-2 change)	*1 participant*		Yes Definitely	No
	0	1 (Alex)		

Data from interviews and learning situation questionnaires (e.g., Game 1 questionnaire) confirmed that most participants' were motivated ('energized' or 'excited') to play games (Game 1, Game 2). For example, when asked when she was 'energized' during the Ultimate lessons, Jill replied: "Well games." Key factors influencing participant motivation to get involved and motivation to stay involved in games playing situations are outlined in the following paragraphs.

Motivation to Get Involved in a Game

Participants identified several factors that influenced their motivation to get involved in a game (Game 1, Game 2) during the eight-day Ultimate unit. These factors included: (a) desire to move and exercise during games, (b) personal interest in playing Ultimate, and (c) focus on self-assessment of skills and playing. Supporting examples are provided to clarify the role of each factor affecting participant motivation.

Desire to Move and Exercise during Games

Participants made frequent comments about wanting to run, move around, and exercise in Ultimate games. Participants associated playing as an opportunity to be physically active during the Ultimate lessons. Brad and Todd offered general statements showing their desire move and exercise during games. Brad stated: "I just like to get out there and play." Todd was also energized for games and said: "I like exercising in games." Several participants discussed the timing of games playing (i.e., Game 1, Game 2) as part of their motivation to get involved in the game.

Game 1 allowed participants to get out and move right away. Celine appreciated this chance to move and play after sitting in the classroom for morning classes. She stated: "Well usually in the mornings we do our classroom stuff that is kind of falling asleep stuff and playing Ultimate after that is really great." Getting out and moving at the start of physical education class was echoed by Marcus who said: "I was energized in the first game because you got to do something physical and you get to run around and play." Emma also shared her excitement about Game 1. She stated: "I was pretty excited because like you can start out with a game."

Other participants talked about how they looked forward to moving around during Game 2. Kristina stated: "I like playing in the final game, it's probably my favorite because it's fun to end with a game". At times, Game 2 was viewed as a more difficult games playing situation because many participants explained that they were tired at the end of the Ultimate lessons. Being too tired to run and play affected participant motivation to get involved in some Game 2 experiences. For example, Brad stated: "It's not as fun as the first game because most of us are tired and it is hard to run around." In addition to a desire to move and exercise, some participants explained that their

motivation to get involved in games playing was grounded in their personal interest in Ultimate.

Personal Interest in Playing Ultimate

A few participants identified their established or new found personal interest in Ultimate as an influence on their motivation to get involved in games playing. For example, Ethan stated: "Just because I like playing Frisbee." Other participants communicated that Ultimate was their favorite sport. Charlie stated: "I was energized because I love Ultimate."

Emma explained that she was having fun playing Ultimate and shared that she was personally interested in future involvement in Ultimate. She stated: "It's a really fun sport and I hope to do it when I get out to middle school or high school." While most participants were participating in all games, only seven out of 15 participants indicated that they had a personal interest in future involvement in Ultimate.

Henry, a special needs participant stated that he had no personal interest in Ultimate and looked forward to Game 2 because it signaled the end of the Ultimate lesson. He said: "I am energized because it's the last session I do not enjoy team sports." and "No I wasn't energized because I didn't want to do Ultimate." Furthermore, he mentioned that his mother agreed that team sports were not a good match for him. He explained: "It's like my mother says I am not very good at team sports." Some participants noted that they were more focused on improving their skills and playing.

Focus on Improving Skills and Playing

Games playing situations were viewed by many as an opportunity to self-assess their skills and playing. From an individual perspective, Emma discussed her continued

Ultimate practice at home and identified Game 1 as a time for her to test the skills she had been practicing with her family. She said: "I was energized because I wanted to see if my passing and catching improved". Helen viewed Game 2 as a time to show what she learned during the parts of the lesson. She stated: "I think it was energizing because we got to show what we had learned in the practice and in game 1." Finally, Todd included team progress in his self-assessment statements. He explained: "I was energized for the first game because I got to see how my team like played and how I played."

Beyond self-assessment, a number of participants recognized games playing (e.g., Game 1, Game 2) as a way for them to get better at playing Ultimate. For example, Helen stated: "I was excited because that would make me a better player." Marcus offered a similar statement. He said: "I was excited because that (Game 1) would make me a better player". Other examples focused on continued games playing as the key to their improvement. Alex targeted catching as an area he wanted to improve during the final week of the Ultimate unit. When asked what he was going to do to improve his catching, he replied: "I am just going to play."

Overall, participants explained that they were motivated to get involved in games playing because they: (a) desired to move, exercise, and play games, (b) had a personal interest in Ultimate, and/or (c) were focused on improving skills and playing. Staying motivated to keep playing games depended on several factors. Each factor is expanded and supported with participant excerpts in the following paragraphs.

Motivation to Stay Involved in a Game

Interest motivation to play Ultimate games was consistently strong among participants but staying motivated during a game depended on the dynamics of the games

playing situation being encountered. The following factors determined whether or not a participant remained motivated to stay involved in games playing depended on the: (a) degree of challenge - game conditions, (b) type of competition, and (c) level of team success.

Degree of Challenge - Game Conditions

Even though most participants were motivated (energized) to play games, no change in game conditions over time or games not perceived as real Ultimate playing prevented some participants from staying fully involved in games playing. Realistic game conditions (e.g., games with end zones) reflected what some participants viewed as real-life Ultimate. For example, Trevor appreciated the Game 2 on Day 3 and stated: "Yes I was [energized] because it was real playing". Playing field and rules were cited as common conditions that influenced participant continued motivation during games playing.

A shift in interest in games playing was visible for several participants when end zones were added to the playing area. Jeff stated: "I was not excited because we did not get to shoot". The next day he commented: "I was excited because we got to make touchdowns." Also, some participants identified that the introduction of the 10-second possession rule was another example of a new and challenging condition. Emma explained: "I was excited to learn because there were new rules." These new rules were perceived as an advancement of the game.

A few participants indicated that no change in the game structure was less exiting. The routine of playing with the same team during a 5 vs. 5 games structure became repetitive by the final day of the unit. On Day 8, Trevor stated: "Not [energized] because

it's always the same game." Also, more challenges caused stress for other participants learning about Ultimate. Henry explained: "I was not excited to learn about the end zone because it was harder."

Some participants were satisfied with game conditions and focused on the type of competition as a reason why they were motivated or not motivated during games playing. Playing other teams served as another factor influencing whether or not a participant remained motivated to stay involved during games playing.

Type of Competition

Competition was another factor that influenced participant continued involvement in games playing. Participants shared examples of both: (a) positive competition and fair playing and (b) a negative experience playing another team to describe why they stayed interested in games playing. For example, Todd identified competition as a positive influence on his motivation to get involved in games playing. He stated: "Yes because we were going against another team." A majority of participant - games playing experiences seemed to reflect positive competition.

The teacher-researcher established that positive sporting behavior was an expectation throughout the Ultimate unit. Also, teams were asked to self officiate their games. Fair play and safe play were both cited as influences on whether or not some participants remained motivated during games playing. Brad stated: "Excited because everyone played fair". Other participants focused on safe playing during competition. Ethan stated: "I was energized because people were passing and there was no contact". In addition to continued motivation to play during fair and safe playing, some participants described positive experiences they had playing a specific team during the Ultimate unit.

Celine explained that she enjoyed playing the green team. She stated: "I really enjoyed playing against green because they always play fairly". Similarly, Todd concluded that a healthy rivalry had developed between his team (blue team) and the yellow team. He explained: "I was energized because we were playing yellow, they won one, we tied, and we beat them, we are rivals". Not all competition was positive, several participants provided examples of unfair and unsafe play that upset them and disrupted their motivation to stay involved and keep playing during a game.

Emotional safety and physical safety were identified as two factors that decreased a participant's motivation to keep playing. Being the target of poor sporting behavior or worrying about safety were factors associated with a negative games playing experience. Specifically, Amy shared that opponents were taunting her during an Ultimate game. She stated: "I was not energized because people on the blue team were making fun of me." In addition to concerns about emotional safety, Ethan explained that he felt that opponents were trying to hurt him during a game. He said: "I wasn't energized because I think Trevor crashed into me on purpose."

Teacher-researcher and Mia's observations of games playing and participant accounts of games playing reflected mostly positive competition and fair playing but some instances of poor sporting behavior were reported by participants during a lesson and/or during an interview. In addition to type of competition, some participants' explained that their motivation to stay involved during games depended on team success.

Level of Team Success

Success was another factor that influenced whether or not a participant stayed motivated during a games playing situation. Some participants shared examples of their

team's success and/or difficulties that their team was encountering when listing reasons why they stayed involved in a game. These participants clarified that their continued interest and involvement in playing games depended on: (a) cooperation (i.e., teamwork) and (b) performance during game play.

Cooperation amongst teammates was identified as a positive influence on team success for several participants. For instance, Celine explained: "I was energized because my teammates were supporting me." In Celine's case, cooperation translated into teammates coming together and emotionally supporting each other. Other participants described the team's ability to share the Frisbee equitably with teammates as an example of team success. Ethan stated: "I was [energized] because everybody was using everybody." Specifically, he complained that there were times during the Ultimate unit when his teammates would not throw to Charlie, another boy on the blue team who was perceived as having lower skill.

Team performance during games playing was another factor that determined team success. Maintaining possession or scoring were two common examples of team success. For example, Amy stated: "I was energized because we made a lot of passes, short and long and scored a lot." Similarly, Marcus explained: "I saw people doing more passes and good throwing." Ethan stated: "I was energized because the defending was good." Ultimately, participants appeared happy when their team was playing well and winning. Trevor stated: "Yeah we've really been doing well, we mostly win because of that like our passes and our defense yeah its part of that." Another example was Helen, who explained: "I was energized because my team was passing and making goals."

Lack of team success was referred to as a reason why participants lost motivation during a specific game. Several participants offered examples of poor team performance related to instances of teammates not moving, making bad decisions, and/or not being able to score during a games playing situation. Poor team movement was a source of team problems during games. Jill shared her frustration with teammates who were not moving well during a Game 1. She stated: "I wasn't [energized] because during the game people weren't moving." In addition, Ethan explained: "I wasn't excited because a lot of people were walking a little and holding the Frisbee more than 10 seconds." Finally, Brad commented on team difficulty in catching the Frisbee during games playing. He stated: "Not excited. Nobody can catch!"

Teammates making bad decisions during game play or not being able to score as a team were additional factors influencing participant motivation to stay involved in games playing. For example, Alex explained that he was really upset during some games because his teammates were just passing to their friends. He concluded: "I was not energized because some people were like not thinking about who they were passing to." Brad provided examples for how scoring or not scoring influenced his continued games playing. His team scored frequently but encountered problems scoring during one of the games. This affected his motivation as Brad stated: "Not energized because our team did not score at all!" During a different game, he reported: "Energized because we won 5-2."

A positive participant - games playing experience (instance of situational interest) required: (a) exciting game conditions, (b) positive competition, and/or (c) team success. Figure 4 presents the characteristics of a positive participant - games playing experience. Participant – Q & A experiences are outlined in the next section.

Participant - Question and Answer (Q & A) Experiences

Stopping participants for Question and Answer (Q & A) time is considered an important step in the TGM sequence of learning situations. The Q & A learning situation allows students' to think critically about strengths of their playing and identify ways to solve the tactical problems occurring during games playing. The following paragraphs outline the factors influencing positive and negative participant – Q & A experiences during the TGM Ultimate unit.

Surveys asked participants' to rate experiences that made them think. Statements included: *I want to participate in activities that make me and my teammates think about ways to improve our Ultimate playing* (pre) and *I appreciated the times when my teammates and I were asked to think about ways to improve ort Ultimate playing* (post) using a smiley face Likert scale (e.g., smiley face with thumbs up = yes definitely, frown with thumbs down = no way). Table 4.3 outlines participant ratings for situational interest in thinking situations during the Ultimate unit.

Although most ratings remained neutral to strong, many participant ratings showed a weaker interest in and opinion about thinking situations by the end of the Ultimate unit. Nine participants (6 boys, 3 girls) maintained or increased to a strong ("Yes") or a very strong ("Yes Definitely") rating for interest in thinking (Q & A) situations between Day 2 (pre-survey) and Day 8 (post-survey). Three participants (1 boy, 2 girls) decreased to or maintained a neutral rating ("Not Sure"). Three participants (2 boys, 1 girl) decreased from a strong or neutral rating to a weak ("No") or very weak ("No Way!") interest in thinking situations. A closer look revealed that getting involved and staying involved in a Q & A depended on individual and team needs.

Table 4.3: Participant Situational Interest (SI) Ratings for Q & A Situations

Situational Interest (SI) Ratings for Q & A	# of Participants		Pre-Survey Rating (Day 2)	Post-Survey Rating (Day 8)
	Girls	Boys		
Maintained Very Strong SI (No change in rating)	*1 participant*		Yes Definitely	Yes Definitely
	1 (Jill)	0		
Increased to Very Strong SI (+ 1 change)	*1 participant*		Yes	Yes Definitely
	0	1 (Ethan)		
Increased to Very Strong SI (+2 change)	*1 participant*		Not sure	Yes Definitely
	0	1 (Todd)		
Maintained Strong SI (No change in rating)	*3 participants*		Yes	Yes
	2 (Amy, Emma)	1 (Marcus)		
Increased to Strong SI (+ 1 change)	*1 participant*		Not sure	Yes
	0	1 (Brad)		
Decreased to Strong SI (- 1 change)	*2 participants*		Yes Definitely	Yes
	0	2 (Charlie, Henry)		
Decreased to Neutral rating (- 1 change)	*2 participants*		Yes	Not sure
	2 (Celine, Kristina)	0		
Maintained Nuetral SI (no change in rating)	*1 participant*		Not sure	Not sure
	0	1 (Jeff)		
Decreased to Weak SI (- 2 change)	*1 participants*		Yes	No
	1 (Helen)	0		
Decreased to Very Weak SI (-3 change)	*2 participants*		Yes	No Way
	0	2 (Alex, Trevor)		

Motivation to Get Involved in a Q & A

While viewed as valuable on most pre-surveys, many participants indicated that they were not motivated to enter into/get involved in the question and answer (Q & A) situations during the Ultimate unit. Many participants reported that their Q & A experiences were frustrating, boring, and a non-motivating part of the lesson. A preference for games playing contributed to lowered motivation when stopping to enter Q & A. For example, on Day 3 Kristina stated: "I wasn't energized because I like playing better." Similarly, Trevor stated: "I was not energized because I'd rather just play ultimate than be talking about it."

Besides a general preference for playing games, specific factors influenced participant motivation to get involved in Q & A situations. Being motivated ('energized') or not being motivated ('not energized') depended on the following two factors: (a) wanting to learn something new and (b) needing a break after games playing.

Want to Learn Something New

Overall, most participants recognized that the Q&A learning situation represented an opportunity to gain knowledge about Ultimate. This possibility to learn something new translated into motivation to get involved in Q & A for several participants. For example, Charlie was vocal about seeking more information and explained: "Then during question time I get to learn more about what I don't understand."

Celine summed up participant sentiment about Q & A experiences within the TGM sequence. She stated:

> Everything was energizing except for the time for questions because I really liked playing and practicing but just kind of sitting still wasn't most exciting thing for me but I think it was good for me to hear what other people were learning and what they learned.

In addition to wanting to learn something new, several participants viewed Q & A as a break time during Ultimate lessons. Brad stated: "… and the time for questions I am energized because it's like a break and we get to learn something."

Need a Break

Like Brad's statement in the previous paragraph, many participants were motivated ('excited') to enter Q & A because they needed to rest after the Game 1. Moving and exercising during Game 1 was tiring for most participants. For example, Amy appreciated the break that Q & A created within the TGM lesson sequence. She explained: "Just kind of time to cool down after the first game". Another example of Q

& A as a break was provided by Helen. She said: "Because it gives you time to just sit down and take a break." Although, wanting to learn and needing a break motivated participants to enter Q & A but they had certain requirements for staying involved in a Q & A.

Motivation to Stay Involved in a Q & A

Overall, participant consensus was that a Q & A learning situation was the least motivating experience during daily TGM Ultimate lessons. Most participants shared Helen's view of Q & A: "I wasn't energized because I wanted to play not answer questions." While the possibility of learning something new hooked the interest of some participants and the opportunity to take a break was exciting for other students, three factors influenced participant motivation to stay involved in a Q & A situation. These factors included: (a) answered questions, (b) learned a new fact or better understand rules, and (c) discussed a relevant concern being encountered within their team.

Answered Question(s)

Having a question or not having questions about Ultimate was one of the factors that influenced a participant's motivation to stay involved in a Q & A. A few participants specified that they were excited because they were able to answer questions and/or have their questions answered during a Q & A situation. Marcus believed that participants were motivated to ask questions during a Q & A and stated: "People were energized by asking [questions]."

Kristina explained that asking questions and hearing answers were both valuable during Q & A. She stated: "I like that [Q & A] because I can ask my own questions and then I can learn from other people's questions." Amy also commented on a general

motivation within the class to answer questions. She shared: "I think some people were energized to answer like me but some people wanted to keep playing." Finally, Jill offered another clear statement about motivation to answer questions during Q & A. She stated: "I was energized because I knew some of the questions."

In contrast, some participants indicated a drop in motivation during a Q & A because they didn't have any questions about Ultimate. Specifically, during one of the lessons, Marcus stated: "No Q's. Not energized." to signify that he was not motivated to stay involved in this particular Q & A. Similarly, Jeff stated: "Well basically I really don't have any questions." This was a consistent response for Jeff, later on in the unit he said: "Not [energized] cause I already know how to play." Another example was provided by Trevor. He said: "Not excited because I don't really have any questions." Some participants were less familiar with Ultimate and appreciated learning a new fact, term, or better understanding rules of games playing.

Learned New Fact or Better Understand Rules

Gaining knowledge or better understanding of the rules in Ultimate motivated some participants to stay involved in Q & A. For example, Charlie talked about learning terms and rules used in the sport of Ultimate. He stated: "Well because it's helped me understand the game better which I didn't know much at the beginning." Furthermore, Charlie added: "Yes because now my facts are straight." Other participants were motivated by learning new ideas and strategies for games playing.

Some participants learned from more experienced classmates who could teach them about playing Ultimate. For instance, Brad stated: "Yeah because some people have played Ultimate before so they brought up some good stuff." Specifically, he

referred to Amy's comments about defensive strategy during games and said: "Amy said defender stalls and I did not know what that was…"

Other participants communicated that they were bored because they believed that they already knew the answers to the questions being asked during a Q&A. Alex reported that Q & A was a waste of time. He said: "I wasn't [energized] because I want to play and I don't want to sit around and hear people say obvious answers like some people are saying oh you should like … just obvious answers that everyone knows."

A number of participants were confident with their knowledge of Ultimate and reported that their motivation decreased because Q&A situations were just reviewing the basics of playing. Specifically, a few participants tied their responses to whether or not they gained new knowledge during the Q & A learning situation. For example, Jeff stated: "Not [energizing] cause I already know how to play." In addition, Helen wrote: "I didn't learn anything. I learned most things on Day 1." Participants remained fully involved in a Q & A if they gained new knowledge and/or the focus of the Q & A matched an individual or team issue/concern.

Discussed a Relevant Team Concern

Discussions that focused on topics related to an individual and/or team concern kept a few participants tuned into the Q & A experience. For instance, Amy was interested in talking about areas to improve and perceived the Q & A learning situation as an important step for team improvement during the TGM lesson sequence. She explained: "Well question time we kind of realize what we're not doing so well and in Game 2 we kind of play more." A few participants stayed excited during Q & A because they wanted to hear ideas for improving team performance. Charlie mentioned that his

team benefitted from the Q & A discussion on defense. He stated, "I was [energized during Q&A] because I thought person to person wasn't working."

According to participants, the lack of movement during Q & A and putting playing on hold for Q & A made it a less 'energizing' and a less 'exciting' learning situation within the TGM sequence of learning situations. Some participants were satisfied with having a break while others were excited to learn something new. Participants who: (a) actually learned something new, (b) were able to answer or received answers to questions about Ultimate, and/or (c) felt that the discussion matched team needs remained fully involved in a Q & A learning situation.

Participant - Practice (Situated Practice) Experiences

Similar to question and answer (Q & A) experiences, participants discussed the match or mismatch between their individual or team's needs for improvement in relation to a Practice (e.g., Situated Practice) situation. Survey statements regarding practice were geared toward participant goals for practice and no statements focused specifically on practice situations. Participant responses to daily TGM learning situation questionnaires and statements during midpoint interviews offered details about factors influencing positive and negative participant – Practice experiences during the eight day TGM Ultimate unit.

Factors influencing participant motivation to get involved and motivation to stay involved in a Practice situation are outlined in the following paragraphs. Like other learning situations, achieving a positive participant – Practice experience depended on the participant and the Practice situation.

<u>Motivation to Get Involved in a Practice</u>

Most participants recognized that Practice situations were a chance to focus in on individual and team needs without interference. For example, Trevor stated: "I kind of like practice time because well there is like no interference … passing is kind of fun too because nobody's getting in your way." The two factors influencing participant motivation to get involved in a Practice included: (a) need for individual improvement and (b) want to evaluate team strengths and weaknesses.

Need for Individual & Team Improvement

Practice offered a time for participants to focus in on improvement without interference from opponents. Most participants made general statements about their motivation to enter and get involved in practice situations. For example, Kristina determined that she needed to improve and felt Practice would help her improve. She stated: "I was energized to practice because I need to get better."

Some participants specified that they were motivated ('energized') to improve their skills during Practice. Ethan mentioned: "I am energized because well if you practice then you become better and you will use that skill in a game." In addition, Marcus focused in on throws when discussing a Practice experience. He said: "… and for practice time I was energized because I got learn better throws and get better at it."

Other participants included team needs as the focus for their work in Practice. Charlie included catching as a skill that his team needed to improve. He stated: "I was excited [for practice] because we needed to learn catching the Frisbee." Finally, many participants looked at Practice as a way to get better for future games playing. Practice was a chance to evaluate the team.

Want to Evaluate Team Strengths and Weaknesses

Participants also recognized Practice as team time to evaluate strengths and weaknesses. No interference from opponents allowed the team to really focus in on areas to improve. The cooperative aspect of focused practice teammates motivated Charlie to get involved in practice. He explained: "Yeah I like practicing just on your team because it's a smaller group of people." Similarly, Amy stated: "Energizing because it's not playing so it's not competition but your working with your team." Once engaged in Practice time, participants discussed team strategy and determining individual strengths. For example, Kristina offered the following perspective:

> Yeah I like that [practice] because you could learn what your team does and then you could think of more strategies to do with your team and what ways people on your team work. How they work with the Frisbee and what they do and so yeah [it was energizing].

Helen and Jeff made similar comments about addressing figuring out and then addressing team needs. Helen stated: "I think that was good because it gave us a chance to practice inside our teams on things that specifically our teams needed to work on." Jeff's motivation to practice was based on improving team playing. He explained: "Well because like if we didn't do really good in the first game we can improve by practicing."

Some participants discussed skill development. Brad was motivated to enter practice to improve passing. He stated: "Energized. We could work on passing." Amy was motivated by teammates teaching each other. She said: "Well … some people on certain teams that can't catch so you can teach them some more." Additional factors influenced participant motivation to stay involved in a practice situation.

Motivation to Stay Involved in a Practice

Motivation to stay involved in a practice situations depended on several factors. Specifically, a positive participant - practice experience needed to achieve one of the

following: (a) benefitted self or the team, (b) introduced fun task, and/or (c) taught new skill/strategy. Each factor is expanded and supported with participant excerpts in the following paragraphs.

Benefitted Self & Team

Most participants remained motivated in practice situations that they felt the practice was benefitting them and/or their team. From an individual perspective, Emma mentioned: "Practice time I was actually kind of energized to learn and practice because I've done new skills and it improved my own skills about passing or catching." Todd believed that he improved during a Practice. He explained: "I was energized because I got to get better at the practice."

Celine included learning to work with her team and team cohesiveness as motivating benefits to a practice. She stated: "Ummm definitely practicing because it helped me work better with my team and in the beginning when we started playing we weren't very coordinated with each other but by the end of the week we actually played really well together." Helen and Jill also believed that Practice helped their teams improve basic skills and overall playing. Helen explained: "Yeah and I think it [Practice] helped our team to like work on our skills." and "I was energized during practice because we improved our skills".

Jill wrote that the freedom to choose a practice activity that met her team's needs during a design your own practice resulted in improved skills. She identified problems during a 2 vs 2 game and viewed better passing as their solution to this challenge. Jill stated: "Energized because practice, we started to do 2 on 2 and it didn't work. Then we did passing."

Concluded that Practice Task was Fun

A few participants determined that a Practice task was either fun or boring. Tasks/situations that were considered fun kept participants involved in the practice. For example, Jeff concluded: "I was [energized] because it was fun". Charlie and Alex talked about their motivation during a design your own practice later in the unit. Charlie stated: "Yes because the games [we chose] were fun." In addition, Alex remained motivated because of the game they set up during Practice. He said: "Energized because of the 2 vs 2 [practice]."

Some participants said they lost interest in the Practice because they felt that the task/situation was boring. During one of the practices, Trevor reported: "Not energized because it was boring." Jeff provided the following reason for being bored during a Practice: "No it was boring since there weren't fun drills." Finally, Trevor deemed a Practice not exciting because the task was a repeat from another lesson. He stated: "Not [excited] because the things we learn repeat over and over."

Taught/Learned from Teammates

Several participants explained that the cooperative aspect of Practice allowed them to teach and learn from teammates. Specifically, a number of participant excerpts reflected a satisfaction from a Practice situation where they taught a teammate or learned from a teammate. For example, Jill stated: "It's like I get to learn stuff that like I didn't know from other students." Furthermore, Celine said: "Yes, I was [excited] because my teammates and I all seemed to have a lot to teach each other."

Summary of Participant – Learning Situation Experiences

Motivation to get involved and stay involved in a TGM learning situation (Game 1, Q & A, Practice, and Game 2) depended on the participant (and their goal orientation), the situation, the day, and whether or not the situation met individual and team needs. Participants offered perspectives for their experiences within both an individual learning situation and within the whole sequence of learning situation.

Most participants were motivated to enter games playing opportunities each day because participants: (a) desired to move and exercise during games, (b) were personally interested in Ultimate, and (c) wanted to self-assess skills and improve games playing. Participants' explained that: (a) challenging realistic game conditions, (b) positive competition, and/or (c) individual/team success were important factors influencing their motivation to keep playing. Being motivated to play and remaining motivated to keep playing during a game resulted in a positive participant - games playing experience (instance of situational interest motivation). Personal interest and goal orientations were not major factors influencing games playing.

Participants valued question and answer (Q & A) and practice (Situated Practice) experiences. Most participants were not energized for the Q & A because they preferred playing. They did enter and get involved in Q & A hoping to learn something new. Factors keeping them involved in Q & A included: (a) answered questions, (b) learned a new fact, term, or rule, and (c) felt the discussion addressed a team weakness. Task-oriented participants were more willing to stay involved in a Q & A with the goal of learning something new compared to ego-oriented participants who developed a confidence about basic knowledge and experience in Ultimate.

Practice was also viewed as valuable but much more motivating for participants. Most participants identified the following reasons for getting involved in a Practice: (a) believed that they needed to improve and (b) recognized the opportunity to evaluate team play. Staying involved in practice depended on: (a) benefits to them and/or their team, (b) task considered fun, and/or (c) teaching and/or learning from a teammate. Task- and ego-oriented participants seemed to appreciate Practice equally.

Interviews allowed participants to expand on individual learning situation experiences and some participants talked about their motivation in relation to the the TGM lesson sequence. When asked about what she thought about her motivation during the different parts of the TGM sequence, Emma shared:

> Well the first game I was pretty excited because like you can start out with a game and maybe not just practicing and maybe it can refresh what you've learned and you could use your skills. Then for time for questions I am kind of excited and kind of not excited because we have to stop playing to answer questions but I could evaluate my own self and figure out what I have learned and what I have not. Practice time I actually was kind of energized to learn and practice because I've done new skills and it has improved my own skills about passing or catching. The game at the end of the class I liked it too because you can always end with a game and everything you learned and use it, use skills learned at practice time.

Figure 5 outlines the requirements for achieving situational interest (SI)/positive participant – learning situation experiences within the TGM lesson sequence (Game 1, Q & A, Practice, and Game 2).

All participants encountered both positive and negative learning situation experiences during the eight day Ultimate unit. In addition to examining situational interest motivation, participants were asked to self-assess their Ultimate playing. Daily TGM learning situation questionnaires included a question seeking details about perceived improvement and learning. For example, Game 1 questionnaires included:

*What did you actually learn during **Game 1**? Please give examples*. Interview responses with examples and excerpts from questionnaires highlighted participant self perceptions of competence/perceived competence. The next section presents examples of participant perceived competence in playing Ultimate.

Self-Perceptions of Competence in Playing Ultimate

Greater perceived competence is identified as one of the expected outcomes when students experience a Tactical Games Model (TGM) sport unit in physical education. TGM experts explain that development of perceived competence is built into the motivational structure that results from becoming a better games player:

> A tactical games approach foregrounds students with the underlying goal of appealing to their interest in games playing so that they value (e.g., appreciate) the need to work toward improved game performance. Improving game performance we hope will lead to greater enjoyment, interest, and perceived competence to become lifelong learners. (Mitchell, Oslin, & Griffin, 2003, p. 166)

This section identified perceived improvements to games playing using Mia's informal assessments and participant self-assessments during interviews. Participant answers to the following interview questions: *Do you think you are getting better at playing ultimate?* and *Why did you improve or not improve?,* provided examples of a developing level of self-perceptions of competence after the first four lessons of the eight-day Ultimate unit.

Findings for participant self-perceptions of competence showed that: (a) all participants' perceived that they were improving in one or more aspects of their games playing and (b) Mia included teamwork as a key area that participants, teams, and the class had improved during the Ultimate unit. Mia's observations and informal

assessments supported participant statements about both perceived improvements in games playing and a class shift toward better sporting behavior and teamwork.

Perceived Changes in Games Playing

Like many of the participants, Jeff perceived that he was becoming a better Ultimate player. He stated: "I think I am getting better at Ultimate" during his midpoint interview. Mia, the participant observer also recognized that participants were starting to play better by the end of the first week of the unit. She explained:

> They've been increasingly improving in all aspects of playing Ultimate so it's been really nice to see which number one tells me that they are actually focusing on what they are doing rather than finding little things about each other to say.

When discussing areas of improvement, Mia and participants focused on: (a) throwing, (b) getting open, and (c) planning/thinking.

Skill

Skill improvement was the main focus of participant self-assessment. Most participants perceived an improvement in either their ability to throw the Frisbee or ability to catch the Frisbee.

Throwing (Passing)

Results showed that all participants (9 boys, 6 girls) perceived that their throwing had improved during the first week of the Ultimate unit. Descriptions of improved throwing were linked to: (a) better control of Frisbee, and/or (b) type of throw in their examples of better throwing. For example, Brad developed better control of his throws and explained: "Its flatter and it's not so high".

Accuracy of throw was another popular improvement. Jill explained that her throws were now reaching her target player: "When I started to pass, it would go to the

wrong place but now it goes to other players". Similarly, Henry commented that he was having better success throwing after making an adjustment to his aim. He stated: "I kind of improved my Frisbee throwing. I didn't try to aim at their heads and I tried to aim at where they are positioned". Mia determined that participants were demonstrating better control, consistency, and accuracy of the Frisbee during games playing:

> It is hard to throw a Frisbee flat every time. Sometimes it could be a little movement you make or you do something wrong with your throw then the Frisbee goes sky high or goes to someone's feet but they've been pretty consistent with their throws and its actually getting to their target.

Several participants identified a specific type of throw (i.e., backhand, forehand) that they had improved during the first week. For example, Trevor described an observable change in his backhand throw. He explained: "Backhand throw. I got better because that was wobbly sometimes and my aim at a person I usually did it a little bit too light or a little bit too hard but now it's kind of its fun it's pretty even." Even Amy, a participant who had prior knowledge and experiences playing Ultimate shared examples of improved throwing. She stated: "Well I knew how to throw a backhand but I wasn't that good at throwing forehand and while practicing backhand I think I improved my forehand." In addition, Charlie compared his throwing earlier in the unit with his throwing toward the end of the first week and perceived improvements in both his backhand and forehand throws. He explained: "At the beginning, I wasn't very good at throwing the Frisbee straight and I've gotten it straighter and now I've been able to do it front hand (forehand) and backhand."

Catching (Receiving)

Catching was also identified by nearly half of participants as another area of perceived improvement. Seven participants (5 boys, 2 girls) provided examples of

improved catching during game play. For example, Charlie stated: "I found a better way to catch it". He explained that he switched from using one hand to using two hands, positioning one low and one high so he could close both hands together on the Frisbee. Other participants provided similar comments about a successful adjustment in the way they catch a Frisbee during games playing. Helen shared:

> Usually I'd just drop it but I think during practice and the games I improved my catching. I usually take my two hands and sort of capture it when it comes to me. Before, I just tried to grab it out of the air.

Mia communicated that she was very proud of the improvement made by participants who were considered the shy/frequent non-participants in physical education class. For example, she discussed Charlie's progress during the unit in the following statement: "I am telling you. Charlie being able to catch that Frisbee and then actually being able to release it and it gets to a target."

Skill improvement (e.g., throwing) represented the most common area of perceived improvement during the Ultimate unit. Another area of perceived improvement was getting open. Several participants and Mia presented examples of participants doing a better job moving during games playing.

Movement

Statements about improved movement without the Frisbee related to moving to open space and getting around people. Four participants (2 boys, 2 girls) made clear statements about reasons for moving as well as describing the process of getting open during games playing. For example, Jill identified: "Moving to get the Frisbee" as her goal for moving when she did not have the Frisbee. When asked about where she was moving she stated: "Where like no one is there and I can be in open space." Jeff

described when players should move and the process he uses to move into open space. He said: "You can move when you do not have the Frisbee in your hand or you can move when you are going to catch the Frisbee." When asked to talk about where he would move to catch the Frisbee he explained: "You should move where the person wants you to get, you should move to an open area where no one is guarding you."

More complex participant examples of off-the-Frisbee movement described games playing situations involving defense. Amy explained: "To get around people." as one of the areas she improved during the unit. She continued to link her answer to real-life playing and stated: "We watched the boys varsity team and their so fast and they know how to get around people." Other participants described situations where they had to move during games playing.

Brad identified faking without the Frisbee as something that helped him get to open space. He stated: "Well when you don't have the Frisbee you need to run around a lot to get open and try and fake people out". He built on this description by saying: "Like I would go one way and then turn to the other and get open for the pass". Creating and using space were introduced as tactical problems to be solved during the first week of Ultimate but faking without the Frisbee was not taught by the teacher-researcher.

Mia also concluded that participants were doing a better job moving during games. She believed that participants were starting to recognize the importance of location to create options for passing and receiving the Frisbee. Mia explained:

> Movement is key so I think all of them are moving much better. They are actually recognizing where to move to because sometimes they'll gather around the Frisbee and they don't have options to throw.

Besides improved skills and movement, better planning during games playing was discussed by Mia and a few participants. Participants used the term 'planning' while Mia used the phrase 'thinking more' to describe better decision-making during games playing.

Decision-Making

A few participants identified better decision-making as an aspect of games playing that they had improved during the Ultimate unit. These participants described better decision-making using terms like planning and *before I… now I …* scenarios. For example, Helen talked about how she made better decisions about her throwing/passing as the unit progressed compared to her initial Ultimate games playing experiences. She stated:

> Because I kind of plan where I am throwing it. Before I just threw it and hoped it would go to the person. In Ultimate I have to like plan where I am throwing it and who is open to throw to.

Charlie also mentioned the planning process he used when he prepared to pass the Frisbee to a teammate. He explained:

> So I have gotten better at finding more than one person to throw the Frisbee too. I have learned that it's about strategy not just tossing the Frisbee around randomly to any person that you see. You know instead of like just tossing it to the person who is closest I have to see if it could be easily intercepted. Or if it is not close enough I have to think about how much force I have to throw it with and where to throw it.

Other examples of improved decision-making focused on determining the amount of force needed to successfully pass a Frisbee to another player and developing awareness for receiving a pass. For example, Jeff described the thought process he entered into when deciding how much force was needed to throw/pass the Frisbee to another player. He explained: "Trying to guess how much force I'll need to push into it. Like how much strength I need to use to throw the Frisbee." Another example of better decisions about

force was presented by Kristina. She considered her teammates and stated: "I thought they were closer to me but I threw with more power and they missed it so I thought maybe to throw it with a bit less power and it'll glide easier and they can catch it."

Preparation for catching/receiving was also identified by a few participants. For example, Trevor outlined the questions he needed to answer when he prepared to catch/receive a Frisbee. He stated: "Um like I don't know just like catching awareness of where, how, what, the timing like when you have to close your hands." Mia concluded that participants as a whole were thinking more during games. She described watching participants stopping and thinking about what they should do during games playing:

> Now they are starting to recognize 'Oh maybe I should either move behind the person with the Frisbee to give her a target if she doesn't have anything way up there' or 'I'll just laterally move away from her and give her another target but I have to move to open space'. I have seen that done quite a bit.

Mia used Henry as an example of a participant who became a better thinker during the Ultimate unit. She provided the following description of his growth during the unit:

> The thing with Henry was a lot of times he doesn't really control what it is that he does. He just lets the Frisbee go and in the beginning that is what he was doing so it was going all over the place but now he actually stops and thinks about the amount of force that he should put on his throw and it's actually getting to his target whether it's far or its close. That's the kind of stuff I am noticing with him it's not so much I am going to throw just to throw. It doesn't happen that much with him anymore he's actually conscious about how much force do I put on it?, who do I send it to?, it has to go to someone who is open.

Both participants and Mia used different terms (i.e., planning, thinking) to describe instances of improved decision-making during games playing.

Mia and participants agreed that overall games playing had improved during the first week (Day 1 – Day 4) of the TGM Ultimate unit. Also, ongoing discussions with

Mia and participant follow up questions about areas they were improving or needed to improve revealed a consistent theme of better teamwork. Examples of a new appreciation for teamwork are provided in the next section.

Teamwork

Mia described a major shift in participant sporting behavior and teamwork during the eight-day Ultimate unit. During the initial interview, she provided the following warning to the teacher-researcher: "This class does not play well together during sports." Negative interactions during games were identified as the main source of conflict in the past but she affirmed that this was not the case during the TGM ultimate unit. Mia explained: "I am so surprised that I didn't see kids yelling at each other which something that happens a lot. That is common for this group and they haven't been doing that during Ultimate." She shared examples of past challenges and stressed: "I am telling you a lot of scenarios that happened with this class could've turned real ugly so I was really excited to see how they pulled it together and just shrugged it off and kept playing." Her comments showed that there was a considerable change in teamwork and sporting behavior among fifth grade participants.

Several participants presented a self- or peer assessment of teamwork. Self-assessments included comments about improving cooperation with teammates or learning about teammate and team strengths and weaknesses. For example, Trevor included the following statement: "How I cooperate with people like team play" when self-assessing his progress during the Ultimate unit. Also, Jill added teamwork in her self-assessment: "Like how to pass and teamwork." She explained: "Well I started to realize how people

can deal with something and like pass to them as they want. Like really strong or really weak so they can like catch it."

Some participants provided peer-assessments to describe better sporting behavior and teamwork among classmates. For example, Helen explained:

> I didn't learn too much about this but I think other people in our class did about like passing and trying to work as a team because our class has had problems with like teamwork and stuff.

Overall, Mia believed that better teamwork ultimately helped participants improve their game play. She explained: "I think they're starting to realize that everyone has to be involved in order for that goal to be achieved which is carrying the Frisbee from one end to the other." Furthermore, Mia expressed how nice it was for her to see the participants working together during the Ultimate unit. The following statement illustrates her observations of improved teamwork among participants:

> They worked as a team, they helped each other, I think pretty much whoever brought ideas to their team everybody listened, everybody tried, if it didn't work then they jumped into something else. It was really nice to see sort of that collaboration and teamwork that they used throughout the whole lesson so that was really nice to see.

Summary of Self-Perceptions of Competence

Participant self-assessments provided evidence that they perceived that they were improving aspects of their games playing. Mia's observations and informal assessments offered supporting examples of improved skills, movements, and decision-making. She also noted that all participants were improving regardless of original skill/effort level descriptions (e.g., shy/frequent non-participants). Finally, Mia reported that there was a major shift in the class dynamics citing improved teamwork.

Games were motivating learning situations (i.e., games playing) and participants and Mia perceived better Ultimate playing during and after Week 1 of the TGM Ultimate unit. The Game Performance Assessment Instrument (Oslin, Mitchell, & Griffin, 1988) was used to code actual changes in both individual aspects of game performance (e.g., Skill Execution for Passing) and overall participant game performance/games playing.

Game Performance during Ultimate Games

Chen & Ennis (2004) wrote that the primary purpose of increasing student motivation in physical education should be to enhance student learning. Becoming a better games player has been associated with increased student motivation and learning within Tactical Games Model (TGM) sport units (Griffin & Butler, 2005). The Game Performance Assessment Instrument (GPAI) was used to identify changes in participant individual game performance measures: (a) Skill Execution for Passing (SEI-Pass), (b) Skill Execution for Receiving (SEI-Receive), (c) Support (SI) and/or (d) Decision-Making (DMI) measures during the Ultimate unit. Also, broad GPAI game performance measures included game involvement and game performance.

GPAI findings showed that all participants (9 boys, 6 girls) improved in at least one individual game performance measure between Day 3 (week 1) to Day 7 (week 2) of the Ultimate unit. The most visible improvements were for participant skill-execution for passing and decision-making scores. Eleven participants (5 boys, 6 girls) improved their passing score. All of the girls made major improvements in their passing. Ten participants (7 boys, 3 girls) improved their decision-making scores between Day 3 to Day 7.

Participant improvement was also visible in the areas of receiving and support. Eight participants (4 boys, 4 girls) improved their receiving and seven participants (4 boys, 3 girls) increased their support score. Most participants maintained a good level of support (.95 or above out of 1) even though their support score did not increase between Day 3 to Day 7. Table 4.4 provides a summary of the participant improvements made between Day 3 and Day 7 of the Ultimate unit.

Participant mean scores for each game performance measure (Appendix P – U) and individual game performance graphs (Appendices V1 - JJ2) show changes in scores from Day 3 to Day 7 of TGM Ultimate unit. A comparison of participant self-assessments, Mia's informal assessments, and GPAI scores revealed that there were some matches between assessments.

Table 4.4: Participant GPAI Improvements between Day 3 and Day 7 of Ultimate

Boys (9)	# of areas improved	Passing (SEI-Pass)		Receiving (SEI-Receive)		Support (SI)		Decision-Making (DMI)	
		Day 3	Day 7	Day 3	Day 7	Day 3	Day 7	Day 3	Day 7
Trevor	4	.57	.83	.88	.91	.92	.96	.79	.93
Charlie	3	.40	.50			.89	1	.60	.75
Marcus	3	.75	1	.83	.86			.70	.91
Todd	3	.54	.92			.93	.95	.70	.88
Alex	2			.57	.58			.77	.83
Brad	2					.87	.97	.86	.90
Ethan	1							.70	1
Henry	1	.50	.75						
Jeff	1			.77	.80				
		5/9 Boys		***4/9 Boys***		***4/9 Boys***		***7/9 Boys***	
Girls (6)	**# of areas improved**	**Passing (SEI-Pass)**		**Receiving (SEI-Receive)**		**Support (SI)**		**Decision-Making (DMI)**	
		Day 3	Day 7	Day 3	Day 7	Day 3	Day 7	Day 3	Day 7
Emma	4	.31	.89	.22	.67	.97	1	.58	1
Helen	4	.60	1	.83	1	.97	1	.67	1
Celine	3	.83	1	.70	.75	.93	.98		
Jill	2	.71	1					.86	1
Kristina	2	.62	.82	.13	.29				
Amy	1	.44	.71	-		-			
		6/6 Girls		***4/6 Girls***		***3/6 Girls***		***3/6 Girls***	
		11/15		***8/15***		***7/15***		***10/15***	

Matches between Assessments

Encouraging students to work toward improved game performance is a key goal of the Tactical Games Model (TGM) and experts recommend that teachers use ongoing assessment to ensure that students develop competence in games playing (Mitchell, Oslin, and Griffin, 2006). Participant self-assessments and informal assessments provided examples of perceived improvement and established developing self-perceptions of competence. The Game Performance Assessment Instrument (GPAI) scored individual measures of game performance (Decision-Making) as a way to provide an objective view of improved aspects of games playing.

A comparison of assessments (i.e., participant self-assessment, Mia informal assessment, and GPAI) showed that there were some full matches between all assessments, partial matches between two out of three assessments, and no matches where there was only one assessment indicating better performance. Table 4.5 presents the matches between participant self-assessments, Mia's informal assessments as participant observer, and GPAI results.

Review of assessment data showed that there were examples of full matches, partial matches, and no matches for select areas of improvement. Another area of participant improvement that appeared in both self-assessments and Mia's informal-assessments was improved teamwork. Examples of improved teamwork were associated with self-improvement and whole class was doing better with teamwork during a sport unit. Improved teamwork was not included in the table because this result was outside the scope of GPAI.

Table 4.5: Matches between Self-Assessments, Mia's Informal Assessments, & GPAI

Name	Passing	Receiving	Support	Decision-Making
Alex	** Self, Mia	** Mia, GPAI		*GPAI only*
Amy	*** Self, Mia, GPAI	*Mia only*	*Self only*	
Brad	** Self, Mia		** Self, GPAI	*GPAI only*
Charlie	*** Self, Mia, GPAI	** Self, Mia	*GPAI only*	*** Self, Mia, GPAI
Celine	*** Self, Mia, GPAI	** Mia, GPAI	** Mia, GPAI	
Emma	*** Self, Mia, GPAI	** Self, GPAI	** Mia, GPAI	*GPAI only*
Ethan	*Self only*	*Self only*	*Mia only*	*GPAI only*
Helen	** Self, GPAI	** Self, GPAI	** Mia, GPAI	** Self, GPAI
Henry	*** Self, Mia, GPAI			*Mia only*
Jeff	** Self, Mia	* Self, Mia, GPAI	*Self only*	*Self only*
Jill	** Self, GPAI		*Self only*	*GPAI only*
Kristina	** Self, GPAI	*GPAI only*		
Marcus	*** Self, Mia, GPAI	** Self, GPAI		*GPAI only*
Todd	*** Self, Mia, GPAI		** Mia, GPAI	*GPAI only*
Trevor	** Self, GPAI	** Self, GPAI	** Mia, GPAI	*GPAI only*

Participant Self-Assessment (Self)
Mia Informal Assessment (Mia)
GPAI Score (GPAI)

*** = Full Match between all sources
** = Partial Match between two out of three sources

Additional criteria assessed by the GPAI are Game Involvement (G-Involve) and Game Performance (G-Perform). The next section offers GPAI scores for participant game involvement and games performance during the Ultimate unit.

Overall Game Involvement and Game Performance

Participant scores for Decision-making (DMI), Passing (SEI Pass), and Support (SI) were used to calculate overall participant game involvement (G-Involve) and game performance (G-Perform) scores during the Ultimate unit. Receiving (SEI-Receive)

scores were not included because only one measure for skill execution was required for game involvement and game performance calculations. The following paragraphs review the results from these broad evaluations of participant game involvement and game performance during games playing.

Game Involvement (G-Involve)

Game involvement was investigated to provide an objective view of how much a participant was involved during games playing. GPAI findings showed that eight out of 15 participants (4 boys, 4 girls) improved their overall game involvement. Mean scores for game involvement increased by 2 points for boys from Day 3 to Day 7. Four boys increased their game involvement from Day 3 to Day 7. Trevor and Jeff made major increases and Alex and Marcus made minor increases in their game involvement scores. Five boys decreased their game involvement from Day 3 to Day 7. Ethan, Henry, Todd, and Brad had major decreases while Charlie had a minor decrease in game involvement.

Mean scores for game involvement increased by 4 points for girls from Day 3 to Day 7. Four girls increased their game involvement from Day 3 to Day 7. Celine and Amy made major increases and Kristina and Emma made minor increases in their game involvement. Two girls decreased their game involvement from Day 3 to Day 7. Helen had a major decrease and Jill had a minor decrease in game involvement score. Table 4.6 presents the changes in participant game involvement from Day 3 to Day 7.

Game Performance Scores (G-Perform)

Game performance scores are considered a way to assess perceived improvements in overall games playing. GPAI findings showed that eleven out of 15 participants (5 boys, 6 girls) improved their overall game performance during the unit. The mean score

for game performance among boys increased .04 from Day 3 to Day 7. Five boys increased their game performance. Todd, Trevor, Marcus, and Charlie made major increases and Ethan made a minor increase in game performance. Four boys had decreases in their game performance. Alex, Henry, Brad, and Jeff had minor decreases in their game performance.

Table 4.6 Changes in Participant Game Involvement between Day 3 and Day 7

GAME INVOLVEMENT Number of appropriate decisions + number of inappropriate decisions + number of efficient passes + number of inefficient passes + number of appropriate support					
NAME	**Boys (9)**	**DAY 3**	*DAY 5 after 2 week break*	**DAY 7**	***CHANGE from*** *Day 3 to Day 7*
Trevor	B	**50**	55	**77** (Highest Score)	*+27*
Jeff	B	**51**	57	**72**	*+21*
Alex	B	**63**	60	**68**	*+5*
Marcus	B	**49**	46	**53**	*+4*
Charlie	B	**41** (Lowest Score)	47	**37**	*-4*
Brad	B	**65**	60	**52**	*-13*
Henry	B	**42**	18	**23** (Lowest Score)	*-19*
Todd	B	**66** (Highest Score)	62	**47**	*-19*
Ethan	B	**62**	58	**42**	*-20*
		Boys (9) MEAN = 54	Boys (9) MEAN = 51	**Boys (9) MEAN = 52**	***Change in Boys (9) Mean = + 2***
NAME	**Girls (6)**	**DAY 3**	*DAY 5 after 2 week break*	**DAY 7**	***CHANGE from*** *Day 3 to Day 7*
Celine	G	**50**	48	**72**	*+22*
Amy	G	**54**	56	**74** (Highest Score)	*+20*
Kristina	G	**47** (Lowest Score)	29	**54**	*+7*
Emma	G	**54**	42	**56**	*+2*
Jill	G	**71** (Highest Score)	54	**64**	*-7*
Helen	G	**52**	50	**35** (Lowest Score)	*-17*
		Girls (6) MEAN = 55	Girls (6) MEAN = 47	**Girls (6) MEAN = 59**	***Change in Girls (6) Mean = + 4***
	CLASS (15)	**Class (15) MEAN= 55**	Class (15) Mean = 49	**Class (15) MEAN = 56**	***Change in Class (15) Mean= + 1***

The mean score for game performance among girls increased .14 from Day 3 to Day 7. Six girls increased their game performance. Emma, Helen, and Jill made major increases and Amy, Celine, and Kristina made minor increases in their game performance scores. Table 4.7 shows changes in participant game performance during the unit.

GPAI mean scores provided an objective view of participant improvement during the Ultimate.

Table 4.7 Changes in Participant Game Performance between Day 3 and Day 7

GAME PERFORMANCE (Decision Making Index (DMI) Score + Skill Execution (SEI-PASS) Score + Support Index (SI) Score) / 3					
NAME	**Boys (9)**	***DAY 3***	*DAY 5 after 2 week break*	***DAY 7***	***CHANGE from*** *Day 3 to Day 7*
Todd	B	**.72**	*.77*	**.92**	*+.20*
Trevor	B	**.76**	*.80*	**.91**	*+.15*
Marcus	B	**.82**	*.70*	**.96**	*+.14*
Charlie	B	**.63**	*.33*	**.75**	*+.12*
Ethan	B	**.81**	*.72*	**.86**	*+.05*
Jeff	B	**.94**	*.90*	**.92**	*-.02*
Brad	B	**.68**	*.72*	**.62**	*-.06*
Henry	B	**.71**	*.61*	**.64**	*-.07*
Alex	B	**.91**	*.91*	**.83**	*-.08*
		Boys (9) MEAN = .78	Boys (9) MEAN = .72	**Boys (9) MEAN = .82**	***Change in Boys (9) Mean = + .04***
NAME	**Girls (6)**	**DAY 3**	*DAY 5 after 2 week break*	**DAY 7**	***CHANGE from*** *Day 3 to Day 7*
Emma	G	**.62**	.79	**.96**	*+.34*
Helen	G	**.75**	.85	**1.00**	*+.25*
Jill	G	**.86**	.82	**.98**	*+.12*
Amy	G	**.77**	.72	**.85**	*+.08*
Celine	G	**.92**	.90	**.96**	*+.04*
Kristina	G	**.80**	.62	**.82**	*+.02*
		Girls (6) MEAN = .79	Girls (6) MEAN = .78	**Girls (6) MEAN = .93**	***Change in* Girls *(6) Mean = + .14***
	CLASS (15)	**Class (15) MEAN = .79**	Class (15) Mean = .75	**Class (15) MEAN = .88**	***Change in Class (15) Mean= + .09***

Summary of Results

Findings showed that participants entered the Ultimate unit with different types of goal orientations and personal interest levels but continued to play games and improve games playing regardless of gender, goals, personal interest, and skill/effort description for physical education. Games offered an avenue for physical activity and remained motivating experiences when participants experienced realistic game conditions, positive competition, and/or team success during games playing. Q & A and Practice were recognized as opportunities to improve and learn individually and as a team.

Mia and participants believed that improvements were being made in the areas of: (a) throwing (passing), (b) catching (receiving), (c) getting open (support), and (d) planning (decision-making). Teamwork was another area of improvement identified by Mia and some of the participants. Overall, Mia, the regular physical education teacher used the following phrases: "It's been tremendous" and "I have been pretty amazed" to describe her final evaluation of participant motivation levels, daily participation rates, and amount of involvement during learning situations during the Ultimate unit. Also, she offered the following quote to summarize participant experiences within the unit was:

> Everybody has been on task, they've been enjoying it from what I can tell, everybody's moving around having fun, everybody's opinion actually counts everyone is listening, they're watching each other to see what they can correct about their own skills and things like that so I have to say that their motivation has been pretty high. Again I am a little surprised with that but I am really happy with that result.

Game Performance Assessment Instrument (GPAI) scores established that a majority of participants had improved in one or more individual game performance measures (e.g., Skill-Execution for Passing) and overall game performance improved for most participants. Unlike Mia's descriptions of involvement by all participants, GPAI game involvement scores identified that some participants were not fully involved in games playing experiences on Day 3 and/or Day 7.

CHAPTER 5

DISCUSSION

Students benefit from exciting physical education programs that introduce a variety of movement experiences (e.g., sport, dance, fitness, aquatics, adventure units) that promote both learning in K-12 schools and lifelong physical activity. As is well established for physical education instruction (Metzler, 2005; Mosston & Ashworth, 1994; Rink, 2001), the teacher's instructional approach for introducing a movement experience will influence how subject matter is experienced by students. Therefore, a positive sport experience is not automatic but the result of careful planning, effective teaching, and meaningful learning experiences throughout the sport unit.

At present time, sport experiences seem to reflect a lottery system of sport instruction in physical education. Due to weak accountability for Quality Physical Education (QPE), some students are lucky and win the jackpot because they are assigned to a teacher who keeps learning and engages in best practices in teaching and learning in sport (e.g., the Tactical Games Model) while other students lose out because they are assigned to a 'gym teacher' who provides little to no instruction during a sport unit. As a way to show this gap in sport instruction I composed a list of possible sport experiences that students could encounter in physical education. Table 5.1 illustrates the different types of sport units that a student might encounter in physical education class. I have modified Hellison's Teaching for Personal and Social Responsibility (TPSR) to reflect teacher personal and social responsibility because establishing and maintaining QPE and learning about and engaging in best practice are a choice.

Table 5.1: Teacher Personal & Social Responsibility for Sport Instruction

Scenario - *A Sport Unit introduced by a …*	Level of Responsibility	Description	Goal for Learning
GYM Teacher who does not value/has little knowledge of sport	Level 0	No Involvement	No instruction/No assessment. Offer free time and free use of sport equipment during physical education class time
GYM Teacher who values sport/has knowledge of sport	Level 1	Respect for Feelings of Others (Self-Control)	Little instruction/Teacher as Referee for game(s) to make sure students are safe and follow basic rules
Teacher with a BUSY, HAPPY, & GOOD (BHG, Placek, 1983) expectation	Level 2	Self-Motivation (Participation)	Focus on keeping students moving, happy, and well behaved during sport lessons
A Teacher with a BUSY, HAPPY, & GOOD + Learning (Placek, 2001) expectation ** *Slowly moving away from BHG***	Level 3	Interdependence (Effort)	Focus on keeping students moving, happy, and well behaved during class. Learning goals are set by teacher and basic information collected to see what students are learning.
An EFFECTIVE teacher working toward QUALITY PHYSICAL EDUCATION (QPE, NASPE, 2001)	Level 4	Leadership (Self-Direction)	Planning for meaningful movement experiences & instruction ensures that all students achieve success or improve in all learning domains (psychomotor, cognitive, & affective). Variety of assessment being used by teacher.
An EFFECTIVE teacher working toward BEST PRACTICE in teaching and learning Sport (e.g., TGM)	Level 5	Transfer (Caring)	Learning about and experimenting with constructivist approaches that activate learners and encourage teaching and learning beyond physical education class. Authentic assessment being used by teacher.

Table modified from tables in Hellison (2003) and Metzler (2005)

Using instructional models and constructivist approaches to teaching and learning is the right thing to do because every student deserves to have positive movement experiences in physical education. I agree with Zidon (1991) who recommends that teachers need to take the road less traveled to make physical education more meaningful for students. Designing and teaching sport units with TGM would reshape units to make sport more meaningful for students and ultimately help teachers combat problems

associated with low motivation during a sport unit: (a) lack of interest, (b) low participation rates, and/or (c) limited success during games playing within a sport unit.

Findings from this study support previous studies that identified the Tactical Games Model (TGM) as an effective way to increase participation among lower and average skill/effort level students and improve aspects of student games playing (e.g., better decision-making) during a sport unit. More importantly findings from this study provide new insight into student motivation to get involved and stay involved during the TGM sequence of learning situations (i.e., Game 1, Game 2) as well as the development of student self-perceptions of competence to play Ultimate.

The Tactical Games Model (TGM) Sport Experience

In order to take a holistic picture of a TGM sport experience, this study considered participant: (a) goals and personal interest (background information for motivation profile), (b) situational interest motivation (motivation during specific tasks/situations), (c) perceived competence (perceptions of improvement/learning), and (d) actual game performance (evidence of improvement). Findings show that participants': (a) participated in daily lessons regardless of gender, goal orientation, skill/effort level, and personal interest in Ultimate, (b) were excited to play games (Game 1, Game 2) because they wanted to move, liked Ultimate, and/or wanted to assess skills/playing, (c) required challenging conditions, positive competition, and/or individual/team success in order to have a positive participant-games playing experience, (d) entered Q & A and Practice expecting to learn something new, (e) stayed interested in Q & A if they received answers, learned facts/rules, and/or felt the discussion helped team, (f) remained involved in Practice if team worked well, task was fun, and/or they

learned skill/strategy, and (g) perceived improvements in games playing (e.g., throwing, getting open).

Maximum Participation

Like most physical education classes, findings showed that the participants in this study entered the Ultimate unit with different goals (i.e., task-goal orientation, ego-goal orientation, & unique goal orientation) and personal interest in Ultimate (i.e., personal interest, not sure, no personal interest). Also, Mia confirmed that participants demonstrated different skill/effort levels (i.e., class athletes, average skill, and shy/non-participant) in physical education class. While some interesting patterns existed within participant motivational profiles, they did not affect a participant's daily participation in Ultimate lessons.

A majority of the participants were task-oriented or consistently focused on trying hard and learning during the unit. With the exception of one girl that Mia classified as a class athlete, task-oriented participants were boys and girls who had average (high effort in physical education) to low (shy/frequent non-participants in physical education) effort/skill levels. Also, most of these task-oriented students maintained or developed a personal interest in Ultimate.

A special needs student introduced a unique goal for success. He wanted to be equal to other students in sports and explained how he and his mom had a discussion about team sports not being the best match for him. They concluded that individual sports like track might be a better fit for him in the future. Although, Henry's low confidence during a team sports setting and continued focus on equity prevented him from developing a personal interest in Ultimate but he continued to participate in each of

the Ultimate lessons. In contrast, some of the participants had a very confident outlook about their abilities and goals for success during the Ultimate unit.

Several of the boys remained ego-oriented with no personal interest in Ultimate. It is important to note that all of the ego-oriented boys were identified by Mia as the 'class athletes' within the fifth grade physical education class. Two possible explanations for the lack of personal interest in future involvement in Ultimate among the ego-oriented boys (class athletes) are: (a) frustration playing closely with average and lower skilled teammates (shy/frequent non-participants) during small-sided games and (b) realization that they also needed to improve their playing during the eight-day Ultimate unit. Video review supported this rationale because some of these boys became physically frustrated when a teammate made a mistake (e.g., dropped a pass) and/or they did not perform a skill properly (e.g., passing). Mia, the regular physical education teacher believed that these same ego-oriented boys were working very hard to improve their skills (e.g., passing) throughout the daily Ultimate lessons.

Overall, Mia used words like 'happy' and 'surprised' to stress that all of her fifth-graders were participating in daily lessons. Even the 'shy/frequent non-participants in physical education' were involved in all parts of the lesson/each of the TGM learning situations (e.g., Game 1, Q & A, Practice, and Game 2). The only fifth graders not participating in daily Ultimate lessons/learning situations had either a medical excuse (e.g., injured boy in wheelchair) or were asked to sit out because they were not prepared to move safely (e.g., girl wearing flip-flops) during an Ultimate lesson.

Mia suggested that participants were more involved in the TGM Ultimate unit compared with previous sport units introduced during the school year. Her attention to

increased student participation during a TGM sport unit supports previous findings from Allison and Thorpe (1997) and Berkowitz (1996). Allison and Thorpe reported that average and lower skilled middle school students were involved and had a better sport experience within a TGM invasion games unit. Berkowitz also described that her middle school students were more excited to participate in physical education class during a sport unit designed and taught using TGM. Unlike out-of-date sport units that focus on large sided games that create a sink (lower skilled students) or swim (higher skilled students) environment, TGM requires that all students work together on teams in small-sided games as a way to increase involvement and ensure a level of success during game situations.

A closer look revealed that participant goal orientations and personal interest were less important than situational interest motivation/positive participant-TGM learning situation experiences. While task-oriented participants with personal interest in Ultimate worked hard and focused on improvement during most learning situations, they did not automatically find all TGM learning situations (Game 1, Q & A, Practice, and Game 2) meaningful enough to stay fully motivated. Also, ego-oriented participants with no personal interest were fully engaged in many of the TGM learning situations introduced throughout the Ultimate unit. Situational influences seemed to have a stronger impact on students' motivation to stay involved and improve than their goal orientations (Chen, 2001) and personal interest (Chen, Darst, & Pangrazi, 1991; Mitchell, 1993).

Instances of Situational Interest within the TGM Sequence

The Tactical Games Model (TGM) lesson sequence (i.e., Game 1 - Q & A - Situated Practice - Game 2) introduced participants to a variety of different learning

situations each physical education class. This purposeful sequence is designed to motivate the learner and enhance learning. Participant reports outlined the factors influencing their motivation to get involved in a learning situation and their motivation to stay involved in a learning situation throughout the eight-day Ultimate unit. Findings identified the requirements for a positive participant – TGM learning situation experience (an instance of situational interest).

Positive Participant – Games Playing (Game 1, Game 2) Experiences

Small-sided games were motivating learning situations (i.e., Game 1, Game 2) throughout the Ultimate unit. This is an important finding because game play is considered to be an essential learning situation within the daily TGM lesson sequence (Game 1, Q & A, Practice, and Game 2). Games were motivating learning situations for several reasons.

Participants were motivated to get involved in games playing (Game 1, Game 2) because they: (a) desired to move, exercise, and play, (b) had a personal interest in Ultimate, and/or (c) wanted to assess their skills and playing. Participants without a personal interest in Ultimate were focused on being physically active during physical education class and knew that time was dedicated to playing games during each of the Ultimate lessons. Also, a majority of participants viewed games playing as a way to get better. Even though games were motivating learning situations there was no guarantee that students would stay motivated once a game was underway.

Motivation to stay fully involved in a game depended on several factors. Continued interest motivation during games playing situations required: (a) challenging realistic game conditions, (b) positive competition, and/or (c) individual and team success

in order to have a positive participant-games playing experience. Ultimately, some students sought a games playing experience that replicated what they considered to be the real game of Ultimate. Similarly, Chen and Darst (2001) found that middle school students were more motivated by challenging real-life tasks (i.e., pass-shoot group work task) compared to simple drills (i.e., stationary chest passing drill) during their investigation of situational interest motivation and task design in basketball.

Finally, participants viewed games playing as an opportunity for them to self-assess their skills (e.g., passing) and improve their Ultimate games playing. This theme of wanting to improve supports the rationale behind placing Game 1 at the start of class to ask students to show what they know and can do and then introducing Game 2 at the end so students can show how much they have improved their games playing after the Q&A discussion and practice. Also, perceived individual and/or team success during games playing could be a confirmation for participants' that this was a good match for their present skill level. Chen, Darst, and Pangrazi (1999) shared the following description of situational interest motivation: "Situational interest is an interactive psychological state that occurs at the moment there is a match between a person and an activity." (p.159)

Positive Participant – Question and Answer (Q & A) Experiences

In contrast to games playing, many participants were frustrated and bored during a majority of the Q & A situations. Some participants identified their preference for playing games and others explained that they did not feel that a Q & A met their individual or team needs. Although less exciting, many participants recognized the purpose of Q & A and circled up and answered questions. This motivation to get

involved in Q & A sessions was based on participants': (a) wanting to learn something new and/or (b) needing a break after games playing.

While the possibility of learning something new hooked initial interest of some participants and the opportunity to take a break was exciting for other students, three factors influenced whether or not a participant was motivated to stay fully involved during a Q & A situation. These factors included: (a) answered questions, (b) learned a new fact or better understand rules, and (c) discussed a relevant concern being encountered within their team. In addition to satisfaction in answering questions during Q & A, a few participants discussed excitement about having a question about Ultimate answered by the teacher-researcher or classmates.

Knowing the factors influencing a positive participant - Q & A experience provides teachers with the information needed to maximize student motivation during a Q & A situation. Considering situational interest motivation challenges teachers to focus in on the design of tasks/situations instead of reducing lessons and units to likes and dislikes. Specifically, I am meeting a large number of teachers who are using student personal interest motivation to guide their instructional and curricular decisions in physical education. In this personal interest scenario, Q & A could be considered a less exciting feature of physical education class that is sacrificed for more play or practice to satisfy student personal interest. Mitchell, Oslin, and Griffin remind us: "After the initial game, questions are necessary, and the quality of your questions is the key to fostering students' critical thinking and problem solving" (2006, p. 13).

<u>Positive Participant – Practice (Situated Practice) Experiences</u>

This Practice time is designed to allow students to discover solutions to the tactical problems (e.g., maintaining possession during an invasion game) that were identified in Game 1 and Q & A. Examples of solutions to tactical problems include: (a) decision-making, (b) selection of off-the-ball movements, and (c) execution of on-the-ball skills. Most participants recognized that Practice situations were a chance to improve individual and team playing. Specifically, the two factors influencing participant motivation to get involved in a Practice included: (a) need for individual improvement and (b) want to evaluate team strengths and weaknesses.

Staying motivated during a Practice depended on several factors. Specifically, a positive participant - practice experience needed to achieve one of the following: (a) benefitted self or the team, (b) introduced fun task, and/or (c) taught new skill/strategy. According to Mitchell, Oslin, and Griffin (2006), students work on teams to solve problems is an important goal for the Situated Practice. Working cooperatively on teams without interference from opponents was an identified as a positive factor during Practice experiences.

The TGM Lesson Sequence of Learning Situations

The TGM lesson sequence of learning situations (Game 1, Q & A, Practice, and Game 2) introduced a series of opportunities for students to experience an instance of situational interest motivation (positive participant – TGM learning situation). Each day offered a similar routine but participant needs and the learning situation design varied day by day. Therefore, no participant had an automatic positive participant – learning situation experience or negative participant – learning situation experience every time they encountered a specific learning situation (e.g., Q & A).

These findings offer early examples of how constructivist conditions/learning situations (e.g., small-sided games) influence interest motivation during TGM lessons/units (Griffin & Patton, 2005; Rink, 1996, 2001). Mitchell (1993) states that situational interest motivation consists of two phases of interest, a catch interest and a hold interest phase. Participant positive – TGM learning situation experiences supported the situational interest motivation framework by identifying the factors that hooked (catch) interest and maintained (hold) participant interest motivation in a specific task/situation (Mitchell, 1993). Similar to Wilson's (1994) situational interest study, participants in this study also listed: (a) having fun, (b) learning, and (c) connecting with others as important factors influencing an optimal experience.

Few studies have attempted to provide a comprehensive picture of student motivation and experiences during a TGM unit. Specifically, this is one of the first studies to: (a) examine participant situational interest motivation, (b) consider self-perceptions of competence (perceived competence), and (c) include game performance scores from the Game Performance Assessment Instrument (GPAI, Oslin, Mitchell, & Griffin, 1988) as a way to better understand the participant TGM sport experience. Becoming a better games player is frequently associated with increased student motivation and the development of perceived competence in the Tactical Games Model (TGM) literature (Griffin & Butler, 2005; Mitchell, Oslin, & Griffin, 2003). Mitchell, Oslin, and Griffin explained how perceived competence fits into TGM's motivational structure:

> A tactical games approach foregrounds students with the underlying goal of appealing to their interest in games playing so that they value (e.g., appreciate) the need to work toward improved game performance.

> Improving game performance we hope will lead to greater enjoyment, interest, and perceived competence to become lifelong learners. (p. 166).

The above quote argues that motivation influences improvement during a TGM sport experience.

Mia believed that participants and non-participants in her fifth grade class: (a) were motivated to get involved in and play games, (b) were consistently involved in all learning situations introduced by the TGM lesson sequence, and (c) improved games playing during the eight-day Ultimate unit. Most participants were both motivated to get involved and improve their games playing. Examples of both perceived and actual participant improvements offered a window into motivation and the learning process during games playing experiences.

Improved Games Playing

If a reasonable version of the Tactical Games Model (TGM) (Metzler, 2005) is used to design and teach an invasion games unit, the expected outcomes include improved: (a) skill execution, (b) off-the-ball (Frisbee) movement, (c) decision-making, and (d) overall games playing. While it was common for earlier comparison studies to present findings showing changes in skill execution and decision-making for both tactical and technical skill-based groups, this study focused solely on the TGM sport experience.

Participant self-assessments and participant observer informal assessments were incorporated into data collection methods to gain better insight into perceived changes in games playing during the eight-day TGM Ultimate unit. Both fifth grade participants and Mia, the regular physical education teacher perceived that improvements were being made in the following areas of games playing: (a) throwing (passing), (b) catching (receiving), (c) getting open (support), and/or (d) planning (decision-making).

Game Performance Assessment Instrument (GPAI, Oslin, Mitchell, & Griffin, 1988) scores confirmed that all 15 participants (9 boys, 6 girls) improved in at least one measure of game performance between the first week (Day 3) and the second week (Day 7) of the Ultimate unit. Specifically, GPAI scores showed participant improvement in the following individual game performance measures: (a) Decision-Making (DMI), (b) Skill Execution for Passing (SEI-Pass), (c) Skill Execution for Receiving (SEI-Receive), and/or (d) Support (SI). Most participants increased their skill execution for throwing (passing).

Throwing (Passing) & Catching (Receiving)

Improved throwing (passing) and catching (receiving) during games playing were the main focus for participant self-assessments and Mia's informal assessments. Effective skill execution for passing was defined for GPAI as: 'participant throws the Frisbee accurately (i.e., flat throw waist level) and their throw reaches intended receiver'. GPAI scores showed that most boys and girls actually improved their throwing (passing) score between week one (Day 3) and week two (Day 7). All of the girls made major improvements in their throwing (passing) scores during the TGM Ultimate unit.

Catching (receiving) was perceived as another area of participant improvement but mentioned in much less detail than throwing (passing). Effective skill execution for receiving was defined for GPAI as: 'student successfully catches a pass (e.g., catches the Frisbee with one or two hands) and does not drop Frisbee'. GPAI catching (receiving) scores showed that about half of the participants improved their receiving scores between week one (Day 3) and week two (Day 7).

Further review of videotaped lessons showed that as teacher, I provided frequent challenges to decrease catching errors but provided limited specific positive and corrective feedback to help participants improve their catching (receiving) skills. Mitchell, Oslin, and Griffin stressed that a TGM teacher must: (a) circulate and ask students what they are thinking and (b) use teaching cues to help students focus on the critical elements of a skill or movement, and (c) allow students to work with their teams for the situated practice. Upon further review, one area that I could have improved as facilitator of Practice was better skill instruction with demos and cues for catching (receiving).

In some cases participants may have become too confident in their ability to catch a Frisbee and rushed to act instead of thinking about their actions. Specifically, although Brad did well during the Ultimate unit he would rush some of his catches or try to do difficult moves (e.g., jump up extra high and reaching back, catch during a full sprint toward end-zone) which decreased his success rate when trying to catch the Frisbee during games playing. This ultimately contributed to a huge decrease in his Skill Execution-Receiving scores for a Frisbee (SEI-Receive).

Despite differences in research design, this study supported findings from earlier TGM studies that show that students improved their sport-related skills (e.g., passing in Ultimate) during a TGM sport unit. For example, Turner and Martinek (1999) reported that middle school students in a tactical group received high scores for passing and control during a field hockey unit. Decision-making is another important game performance measure that is frequently assessed using the GPAI.

Planning and Thinking

Interestingly, a few participants used the term 'planning' to describe changes in their decision-making during games playing situations. In addition, Mia used phrases like 'thinking more' to describe better student decision-making. Appropriate decisions regarding when to throw the Frisbee to a teammate were assessed using the GPAI. GPAI scores showed that more than half of the participants improved their decision-making score between week one (Day 3) and week two (Day 7) of the Ultimate.

Earlier TGM studies (Allison & Thorpe, 1997; Mitchell, Griffin, & Oslin, 1997; Mitchell, Oslin, & Griffin, 1995; Turner, 1996) validated the model's influence on participant decision-making during TGM games playing experiences. For example, Turner (1996) reported that sixth and seventh graders improved their decision-making related to passing and tackling decisions during a field hockey unit. Although less visible in the TGM literature assessment of participant support (movement without the Frisbee) was included to gain a broad picture of games playing/game performance during this study.

Getting Open

Some participant self-assessments included getting open more for their teammates during games playing. Mia also believed that participants were moving better and provided numerous observations of fifth grade participants making great runs to get open to receive a pass during a game. Appropriate support was defined for GPAI as: 'being in or moving to a location to receive a pass from a teammate (e.g., backwards to reset attack or forward toward the goal)'. GPAI scores showed that less than half of the participants increased their support score between week one (Day 3) and week two (Day 7). While the limited change in support was surprising, a closer look revealed that most of the

participants who did not increase their score maintained a good level of support (e.g., .95 or above out of 1).

Creating and using space was a major focus on Day 1 and Day 2 and then reviewed on Day 3 (selected as lesson for week 1 assessment). I believe that more students would have had a higher GPAI score for support if the week one GPAI assessment was executed on Day 1 or Day 2 instead of Day 3. Participant self-assessments, Mia's informal assessments, and GPAI scores show that most participants in this study became better movers and learned how to support their teammates in order to maintain possession during Ultimate games. Mitchell, Oslin, and Griffin (1995) also found that sixth graders improved their support of teammates during an eight-day soccer unit. More studies are needed to explain changes in participant support and movement during TGM sport units.

Overall Game Performance

Broad GPAI game performance scores were also calculated using individual participant GPAI scores to evaluate overall games playing. GPAI Game Performance scores showed that most participants improved their overall games playing between week one (Day 3) and week two (Day 7) of the eight-day TGM Ultimate unit. In addition to examples of participants' improving individual (e.g., skill execution-passing) and broad game performance measures (e.g., overall game performance), participants and Mia commented on better teamwork. Teamwork is not included as a GPAI measure.

Learned Teamwork

Learning teamwork was an unexpected finding. Before this study began, Mia warned me that her fifth-grade students did not play well together during sport units. She

welcomed the Tactical Games Model (TGM) as a fresh approach to teaching sport to her fifth (actual study) and sixth (practice unit) grade students with the hope that they would have better sport experiences in her physical education program. Findings show that using TGM to design and teach the Ultimate unit reshaped sport experiences within the Cliffside Elementary Physical Education Program.

During our formal and informal conversations, Mia talked about the major changes that influenced participant sporting behavior and respect for teamwork within her fifth grade physical education class. Participants also noticed that they, their teammates, and/or the class were learning about teamwork. In some instances, participants confirmed Mia's descriptions of poor sporting behavior in past sport units by saying that many of their classmates had problems playing with one another (e.g., fighting, yelling, stealing the ball) during games. Although the research design focused on motivation and aspects of games playing (e.g., skill, movement, and decision-making), improved teamwork became a reoccurring theme within this study. While there are numerous findings for skill execution and decision-making, one area of research that has yet to expand is learning in the affective domain during TGM sport units (Holt, Strean, & Garcia, 2002).

Finally, evidence of improved teamwork within small heterogeneous teams is an important result because many teachers remain unsure about how to organize students with different skill abilities. Two other variables that may have influenced the theme of improved teamwork are: (a) teacher-researcher daily expectations for good sporting behavior knowing in advance that the fifth-graders had difficulty playing together and (b)

the culture of Ultimate as a sport that values self-officiating (e.g., use of rock, paper, scissor to solve disputes) and fair play.

The Big Picture

This Tactical Games Model (TGM) Ultimate study: (a) supports the core expected outcomes (e.g., increased motivation, better games playing) for using TGM, (b) identifies key factors influencing participant interest motivation before and during games playing, and (c) reinforces calls for more use of TGM in upper elementary, middle school, and high school physical education. I feel comfortable saying that all participants had a number of meaningful experiences playing Ultimate during the eight-day unit even if they did not have or develop a personal interest in Ultimate. In addition to participant self-reports, Mia's perspectives as the regular physical education teacher and participant observer during this study were important in understanding participant TGM sport experiences. Specifically, she had worked with the fifth grade participants all year prior to the implementation of the eight-day TGM Ultimate unit at Cliffside Elementary.

Upon completion of the unit, Mia was asked to evaluate aspects of the unit and concluded that her fifth grade students were: (a) fully involved, (b) highly motivated, (c) improved their games playing, and (d) learned to appreciate teamwork during the eight-day TGM Ultimate unit. Overall, Mia communicated that she was very pleased that there was a positive shift in class dynamics (e.g., better sporting behavior and teamwork) for both fifth and sixth grade classes considering they were preparing to enter middle school soon. Furthermore, she acknowledged that she was going to try to use TGM during future sport units with the fifth and sixth grade physical education classes.

The positive findings for participant motivation (e.g., increased interest motivation, improved perceived competence) and improvement (e.g., better games playing) during a TGM sport unit have strengthened my belief that TGM is a powerful way to teach and learn sport in physical education. Similar to Gubacs (2000) and Berkowitz (1996), I learned more about TGM by using TGM to design and teach a sport unit in physical education. My attention to faithful implementation of TGM to design and teach an eight-day Ultimate unit for the fifth (actual study) and sixth grade (practice unit) classes at Cliffside Elementary helped me fully appreciate the characteristics/themes of TGM the instructional model (e.g., teaching for understanding). More importantly, using TGM stretched my understanding of the constructivist nature of TGM.

Lessons Learned as Constructivist Teacher-Researcher

The Tactical Games Model (TGM) is viewed as a way to make teachers think differently about the way they are designing sport experiences in physical education (Kirk, 2005; Metzler, 2005; Mitchell, Oslin, & Griffin, 2006). Unlike traditional approaches (e.g., command & practice teaching styles) to teaching physical education, TGM is an instructional model (Metzler, 2005) rooted in constructivism (Griffin, Butler, Lombardo, & Nastasi, 2003; Griffin & Patton, 2005; Mitchell, Oslin, & Griffin, 2006). Designing and teaching a TGM sport unit provided me with real-life examples of using a constructivist approach to teaching and learning in physical education. As the teacher-researcher, I learned that: (a) timing the execution of the TGM learning situations (Game 1, Q & A, Practice, and Game 2) is difficult within a 40 minute lesson and (b) participants continued to learn from and teach others beyond teacher instruction and physical education class.

Implementation - Flow of TGM Sequence of Learning Situations

Like other teachers learning to design and teach sport units using the Tactical Games Model (TGM), I encountered challenges executing the whole TGM sequence of learning situations (Game 1, Q & A, Practice, and Game 2) during a 40 minute physical education class. Unlike a middle school for grades sixth through eighth, Cliffside was a K-6 Elementary School and did not have locker rooms. Participants wore physical education clothes to school or changed in the bathroom prior to the start of physical education class. Also, classroom teachers were on time both dropping participants off for the start of class and picking them up at the end. Therefore, the maximum amount of time for each physical education class, each TGM Ultimate lessons remained 40 minutes.

Knowing that the TGM teaching and learning process was complex, I established a daily routine to help with time management within the 40 minute physical education class. This daily routine reflected the aspects of the TGM sequence and included time for: (a) a welcome, (b) team set up (find uniform and sit with team), (c) introduction of tactical problem(s) on posters at cork board inside gym, (d) explanation of Game 1 using posters at cork board, (e) set up of Game 1 by providing demo and assigning teams to playing area, (f) holding a Q & A session after initial games playing experience, (g) organize one to two Situated Practice tasks, and (h) allow for a final game for participants to show improvement. Also, data collection methods were built into transition time and parts of the lesson to reflect times when a teacher would use an assessment in physical education class (e.g., after important event, closure).

As the teacher, I found it difficult to balance the time dedicated for each TGM learning situation in order to maintain a good flow for the TGM sequence of learning

situations. Specifically, balancing time for each TGM learning situation and executing smooth transitions between each learning situation was a challenge with added research methods. My original goal for average time per learning situation was: (a) Game 1 = 10 minutes, (b) Q & A = 5 minutes, (c) Situated Practice = 7-8 minutes, and (d) Game 2 = 10 minutes. These time goals were trumped by the need to support student problem solving and improved games playing. For instance, extending games playing, adding a second practice, and freezing students to ask questions outside of Q & A were all important decisions that I made during the lesson.

In addition, I modified the TGM sequence (i.e, Game – Q&A – Practice) on Day 1 and Day 2 due to additional review sessions and management tasks early on in the unit. For instance, a goal for Day 1 was to organize teams and walk students through the TGM sequence but unexpected events interrupted participant attendance (e.g., some students entering late and others leaving early for a chorus/band rehearsal). The revised Day 2 included some of the methods and management tasks planned for Day 1.

During a similar invasion games study, a middle school physical education teacher implementing a TGM water polo unit reported that he needed to modify the TGM sequence of learning situations due to time restrictions with the pool and locker room routines (Carpenter, 2007). This same teacher continued to focus on challenging students to think critically, improve skills and movement, and become better water polo players even with modified TGM lesson sequences (e.g., Game – Practice – Game; Game – Q & A – Practice).

The 40 minute physical education class was sufficient for executing the TGM sequence with data collection methods built in as assessments. While a 40 to 50 minute

lesson is normal for middle and high school physical classes not on block scheduling, I did not lose lesson time for locker room supervision and time set aside for changing. Although not required for success, longer physical education classes, maybe those supported by block scheduling, would support inservice teacher practice using TGM to teach sport.

TGM's purposeful sequence of learning situations is important in activating students to think and move during each lesson. Early on I relied on literature and theoretical guidelines to conceptualize active learning within the TGM sequence. Also, I frequently returned to the following description by Lemlech (2002) to guide my interpretation of constructivism and constructivist approaches: "An approach that encourages students to structure personal understanding through an active learning experience" (p. 20). Also, I regularly referred to guidelines for teacher use of constructive approaches in the field of physical education.

Beyond Instruction: Learning From and Teaching Others

Dyson, Griffin, and Hastie (2004) identified the following pedagogical implications for constructivist teaching in physical education: (a) teacher is a facilitator, (b) students are active learners, (c) students work in groups or modified games, (d) learning activities are interesting and challenging, and (e) students are held accountable. During the eight day Ultimate unit I observed, heard, and learned how a constructivist learning environment encouraged participants' to become active learners.

Several participants shared detailed examples about learning beyond teacher instruction and the physical education environment. Excerpts included learning from teammates and opponents during physical education class. Mia and I were both surprised

to hear that some students were: (a) practicing and playing with classmates (5^{th} graders) and friends (6^{th} graders) during recess and (b) learning from and teaching family at home during the five week period selected for the Tactical Games Model (TGM) Ultimate study. The original scope of motivational influence of constructivist conditions/TGM learning situations was limited to the physical education setting (i.e., gym, field, blacktop). Each of the following themes for learning from and teaching others need further investigation.

Learning by Watching

Watching opponents and collaboration with teammates were two examples of learning that continued beyond teacher instruction during physical education class. For example, although not taught, faking out other players was learned by getting faked out or watching an opponent fake a forehand throw or use a fake move/run to mess up the defense. In addition to watching and learning, one team decided that they would collaborate to create a unique code system for communicating whether or not they were open to receive a pass. Specifically, the red team established that yelling a number one through five meant "I'm open" and six through ten meant "not open". As the teacher I encouraged teams to practice together and emphasized that teammates help each other out so their team improves for the next game. I did not instruct or offer ideas about constructing complex communication systems on their teams. Ultimately, I learned that students were watching each other and some teams were taking team time during practice to take their games playing to new heights.

Practice during Recess

Recess was also mentioned as a time to throw and catch with friends or set up mini-games of Ultimate. Both Mia and fifth grade participants talked about Frisbee during recess in place of regular recess activities (e.g., running around, shooting baskets, or relaxing). What was happening is some students were finding Mia before recess and asking her if they could borrow Frisbees. Interestingly, some of the friends they were throwing and playing with were sixth graders who had also been experiencing a TGM Ultimate unit (i.e., teacher-researcher practice unit). This was exciting because while I always hope that students continue to use what they learn outside of class and I did not ask students to practice outside of class. They were taking their Ultimate experience outside of physical education. This also extended to home and neighborhood.

Teaching and Learning from Family

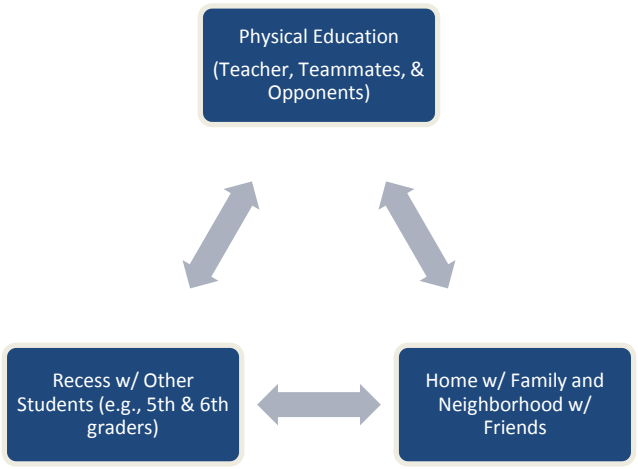
Comments about watching an older sister play high school club Ultimate, teaching a little brother, practicing with a parent, and learning from an older sibling were examples of how Ultimate reached home for some students. This focused work with family seemed to be a serious investment. Ultimately, participants explained that they continued learning on their own in class, at recess, and at home.

Potential Cycle of Teaching and Learning

In some cases participants were using their new knowledge and experience to teach someone else how to play or improve Ultimate playing. While lifelong learning is a common goal for all educators, rarely do we hear about or ask how students apply knowledge and experience outside of our classes. Physical education class, recess, and home were all viable learning environments for learning Ultimate during this five week

study. Figure 5.2 offers a visual representation of the potential cycle of teaching and learning opportunities that can occur for some students during a TGM sport unit.

Figure 5.2: Potential Cycle for Teaching and Learning within a TGM Sport Unit



Having a successful experience using TGM to design and teach an Ultimate unit stretched my interpretation of constructivism and the effects of a constructivist learning environment. Although, early lessons were messy and a little chaotic due to the focus on learning through games, both students and I became more comfortable with and learned a great deal from teaching and learning during the TGM lesson sequence of learning situations. The following statement by McCombs and Whisler (1997) has much greater meaning for me after observing students experience the TGM Ultimate lessons/unit and hearing their stories about ways of learning and opportunities to teach others during the unit:

> Learning is a constructive process that occurs best when what is being learned is relevant and meaningful to the learner and when the learner is actively engaged in creating his or her own knowledge and understanding by connecting what is being learned with prior knowledge and experience (pg 10).

This study scraped the surface of the constructivist teaching and learning process within a TGM sport experience. Continued investigations are needed to better

understand the constructivist nature of TGM (Griffin, Brooker, & Patton, 2005; Rink, 1996, 2001). Details about teacher faithful implementation of TGM and teacher conceptions of constructivism in action will be valuable for physical education teachers who are interested in using the Tactical Games Model (TGM).

Directions for Future Tactical Games Model (TGM) Research

Using grounded theory (Strauss & Corbin, 1998) encouraged the development of visual models to explain participant Tactical Games Model (TGM) sport experiences in physical education. Figure 4: Characteristics of a Positive Participant - Games Playing Experience was presented in the results chapter to explain situational interest motivation during a TGM learning situation (Game 1, Game 2). Since TGM is still considered an innovation in the field of physical education (Metzler, 2005), grounded theory is appropriate for developing new theory and more complex visual models for explaining motivation, improvement, and learning within a TGM sport unit. In addition, I am proposing that future TGM research: (a) establish faithful implementation, (b) clarify the difference between maximum participation versus involvement, (c) use a team approach for building a study with multiple theoretical frames for studying motivation within a constructivist approach, (d) continue to revise research questions, and (e) include qualitative data collection methods to explain the participant TGM sport experience.

Establishing Faithful Implementation of the Tactical Games Model (TGM)

As the focus for Tactical Games Model (TGM) research shifts toward a holistic examination of TGM, an instructional model and constructivist approach to teaching and learning sport. Linking student outcomes to the TGM sport experiences requires that a "reasonable version" (Metzler, 2005, p. 191) of TGM was used during the unit. Future

TGM studies should take steps to document planning and teaching to describe proper use of TGM.

After accepting the teacher-researcher role for this study, I took steps to document faithful implementation. Examples of steps taken to establish faithful implementation of TGM during the eight-day Ultimate unit include: (a) all lesson plans and block plan were typed, printed, and placed in a study binder, (b) all lessons were videotaped, and (c) all videos were reviewed using a modified teacher performance checklist (Fisette, Bohler, Carpenter, & Griffin, 2006). Copies of lesson plans were also shared with Mia and a DVD with highlights of TGM teaching was shared with my dissertation committee.

Examples of teacher faithful use of TGM and further empirical findings for student outcomes associated with a TGM sport experience will: (a) add to the physical education literature, (b) combat misconceptions of TGM, and (c) support preservice and inservice teacher learning about TGM implementation.

Clarifying Maximum Participation versus Involvement

Maximum participation has long been a major goal for physical education teachers. Mia's observations and teacher-researcher field notes determined that there was maximum participation during the TGM Ultimate lessons. Our criteria for participation included all participants were: (a) moving and playing in games, (b) talking, asking questions, and/or appeared to be listening during Q & A, and (c) were working with their team and on task during Practice.

Unlike Mia's general descriptions of involvement by all participants, Games Performance Assessment Instrument (GPAI, Oslin, Mitchell, & Griffin, 1988) scores for overall game involvement showed that some participants were not fully involved in

games playing experiences on Day 3 and/or Day 7. As teacher-researcher, I generated both field notes focusing on events and GPAI scores via systematic observation. Specifically, GPAI tools were created using TGM resources and then scores were calculated using established formulas.

Mia observed all lessons start to finish without: (a) criteria defining game involvement during games playing and (b) a structured tool were provided to record game involvement data. Future work in TGM must identify user-friendly tools for a participant-observer to record data about involvement while observing games playing and other learning situations during a TGM sport unit. Future studies should continue to investigate motivation and the potential links between motivation, improvement, and learning during TGM sport experiences.

Using a Team Approach - Incorporating Multiple Theoretical Frames

Situational interest motivation (Chen, Darst, & Pangrazzi, 1999; Krapp, Hidi, & Renninger, 1992; Mitchell, 1993) provided the central framework for interpreting motivation during a Tactical Games Model (TGM) sport experience. Situational interest provided a way to explain participant-TGM learning situations within the TGM sequence of learning situations (Game 1, Q & A, Practice, and Game 2). Goal orientations (Nicholls, 1984) and self-perceptions of competence (Elliot & Dweck, 2005) offered additional theories that helped explore participant TGM sport experiences during the eight-day Ultimate unit.

Chen (2001) recommends that researchers should incorporate multiple frameworks to best interpret the different types of motivation that occur during physical education experience. I agree with Chen but suggest that researchers team up with other

physical education professionals (teachers, teacher educators, and researchers) for a collaborative approach to TGM studies that investigate the motivation process and links to improvement and learning within a sport unit. For example, a combined: (a) achievement goal (Alderman, 2004; Chen, 2001; Chen & Ennis, 2004; Pintrich & Schunk, 2002; Solmon, 2003; Treasure, 1997), (b) role of interest (Hidi, 1992; Hidi & Anderson, 1992; Krapp, Hidi, Renninger, 1992), (c) self-perceptions of competence (Dweck, 2002; Elliot & Dweck, 2005; Pintrich & Schunk, 2002), and (d) information processing (Griffin, Dodds, Placek, & Tremino, 2001; MacDonald, 2004; Nevett, Rovegno, Babiarz, & McCaughtry, 2001) study would provide a comprehensive picture of motivation, improvement, and learning processes during a TGM sport unit.

One consideration for adding goal achievement theory is exploration of the motivational climate (Boekaerts, 2002; Urdan & Schoenfelder, 2006; Wigfield & Eccles, 2002) created by TGM. Situational interest findings seemed to override goal orientations (Nicholls, 1984; Nicholls, J. G. & Miller, A., 1984) and personal interest motivation (Krapp, Hidi, & Renninger, 1992) in this study but little is known about TGM's potential to create a task-oriented motivational climate. Pintrich and Schunk (2002) identified Eptein's TARGET framework as a way to explore how the classroom/learning environment affects student achievement motivation/overall motivational climate. The six dimensions of TARGET are: (1) Task, (2) Authority, (3) Recognition, (4) Grouping, (5) Evaluation, and (6) Time.

Finally, the inclusion of information processing theory or more specifically a Domain Specific Knowledge (DSK) framework could explore participant comments about improved "planning" during games playing and use of "before I … now I …" type

statements. These examples of better planning offered a small window into student development of tactical awareness but my data collection tools were focused on motivation and not designed to fully appreciate the complex development of tactical awareness. Information processing theory focuses on a learner's selection, organization, and integration of new knowledge and experiences with existing knowledge and past experiences (MacDonald, 2004). Several studies (Griffin, Dodds, Placek, & Tremino, 2001; Nevett, Rovegno, Babiarz, & McCaughtry, 2001) provide examples for how researchers can study student tactical awareness and procedural knowledge by using an information processing frame. Findings from holistic studies that incorporate multiple theoretical frames will be asset to the TGM literature.

Continuing to Improve Research Questions

Research questions should be refined to fully realize the links between student motivation, improvement, and learning within a constructivist approach to teaching and learning sport (i.e., Tactical Games Model). This study focused on the role of motivation during the TGM sequence of learning situations (Game 1, Q & A, Practice, and Game 2). I believe that the TGM sequence offers a powerful way for students to experience, deconstruct, practice, and then show improvement in games playing. Also, I think that the TGM sequence of learning situations contributes to the constructivist teaching and learning process. In addition to answering existing research questions, the following research questions could expand investigations studying the influence of the TGM sequence of learning situations:

- To what extent does the introduction of tactical problems (teacher goals) influence and/or focus student goal setting for improvement and learning during each Tactical Games (TGM) lesson?

- How does each learning situation (constructivist condition) motivate students to get involved and stay involved within the TGM sequence?
- How does motivation influence student improvement and conceptions of learning within the TGM sequence of learning situations (Game 1, Q & A, Practice, and Game 2)?

These additional research questions could expand motivation findings and explore the development of tactical awareness by individuals and teams (Pagnano-Richardson & Henninger, 2008) within TGM, a constructivist approach to teaching and learning sport. The next section identifies successful qualitative data collection methods that should be incorporated into future TGM studies that investigate motivation and improvement.

Including Qualitative Data Collection Methods

Future Tactical Games Model (TGM) motivation studies should use qualitative methods to help teachers, teacher educators, and researchers better understand how student TGM sport experiences are different than traditional technical sport units in physical education. Mitchell, Griffin, and Oslin (1997) stated that the qualitative aspect of TGM motivation research should remain a priority to fully capture student voices. Therefore, TGM studies that focus on student motivation and sport experiences should include participant self-reports about motivation. If possible, I recommend having another physical education teacher observe the TGM lessons to add more depth to analyzing student TGM sport experiences and to strengthen triangulation of data sources.

I suggest that data collection tools for future studies provide opportunities for both written and verbal self-reports. This TGM study relied mostly on written responses and explanations to the TGM learning situation questionnaires (Carpenter, 2004, 2007) questions. Although some fifth grade participants provided rich details on the TGM learning situation questionnaires, the conversations with participants during the 10-

minute midpoint interviews obtained the most insight into participant experiences during the Ultimate unit.

TGM learning situation questionnaires and talk-aloud protocols can be used to provoke student reflection before, during and/or immediately after they experience a TGM learning situation. Tape recorders could be located on sidelines where a talk-aloud station could be set up so students could verbally respond to a brief protocol of questions immediately after an event occurs. Ultimately, clipboards with TGM learning situation questionnaires and tape recorders with a brief talk-aloud protocol could be alternated each day or per student each lesson.

Incorporating Fitness Technology

Finally, after distributing pedometers on the last day of the unit as a thank you gift for participating in the study, I realized that having fifth grade students wear pedometers and then report their steps was both easy and interesting data. Since they were wearing their pedometers for the whole class, I asked them to record their steps on the side of the TGM learning questionnaire card for Game 2. Fifth grade students averaged 1855 steps on a day that only had 13 minutes of game play (average was 16 minutes game play during 40 minute classes) due to more data collection methods than normal (i.e., TGM learning situation questionnaire, focus groups, post-survey) during the Day 8 40 minute lesson. Fitness technology (e.g., pedometers, heart rate monitors) could easily be incorporated to assess participant effort (Kirkpatrick, 2008) and investigate general physical activity levels in physical education (Corbin, 2002) and TGM sport units.

The physical education community as a whole will benefit from an expanding knowledge base for instructional models and constructivist approaches to teaching and

learning in physical education. Advocating that students have positive and meaningful movement experiences (e.g., fitness & wellness, sport, dance) and supporting continued teacher learning (Joyce & Showers, 1983; Killion, 1999; Rovegno, 2003; Saphier & Gower, 1987) should be the main charge for physical education teacher educators and researchers.

Mia was unaware of the Tactical Games Model (TGM) before volunteering for this study. Even thought she wasn't exactly sure what TGM looked like she was very enthusiastic about learning a new way to teach sport to her fifth and sixth graders. I helped her learn about TGM through ongoing discussions and sharing materials. For example, I provided her with daily lesson plans during both the sixth grade (practice unit) and fifth grade (actual study) units. After this TGM experience, she talked about how she was experimenting with her fourth graders and looked forward to trying to use TGM with her fifth and sixth grade physical education classes next year. The next section offers implications for inservice and preservice teacher use of TGM to design and teach sport units.

Implications 'A Meaningful Guide to Action'

Like Mia: (a) not all teachers have knowledge of or experience using instructional models and/or constructivist approaches, (b) some teachers are hesitant to learn something new unless they are shown a successful demonstration, and (c) the teachers interested in innovations in physical education may lack the support needed for a change in practice. Upon completion of this study, I identified three practical implications for teacher educators interested in supporting inservice and preservice use of the Tactical Games Model (TGM). These implications include: (a) encouraging co-teaching, (b)

forming a TGM Network of teachers, and (c) developing a guide book for using TGM - a constructivist approach to teaching and learning sport. Together these three implications form a 'meaningful guide to action' for teacher educators.

Encouraging Co-teaching Projects

Finding support from other physical education professionals has been identified as an important step for teachers planning to use the Tactical Games Model (TGM, Mitchell, Oslin, & Griffin, 2006). As a teacher educator, I recognize that TGM is difficult and that I need to provide a support system for interns (student teachers) implementing TGM on campus during labs and off campus during experiments at their school placement. Also, most mentor teachers need support so they feel comfortable helping interns achieve success during their TGM experiments.

A number of mentor teachers request more evidence that TGM works in physical education when they learn about the required intern TGM experiments with sport lessons. In some cases, successful intern (student teacher) experimentation with TGM out in the schools have produced success in strengthening preservie teacher buy in and opened up discussions about different ways to teach sport and physical education with hesitant mentor teachers. Another valuable form of support and advocacy for intern and inservice teacher use of TGM has been co-teaching projects.

These co-teaching projects include but are not limited to: (a) two interns co-teaching together, (b) intern and mentor teacher co-teaching, (c) intern and teacher educator co-teaching, and (d) mentor teacher and teacher educator co-teaching. Each of these co-teaching scenarios holds potential in: (a) supporting teachers willing to experiment with TGM and (b) working toward a model of a 'reasonable version' of

TGM. Finally, videotaping and reviewing these experiences will help with reflection on the TGM experience and create a resource that can be used to support other physical education professionals (e.g., preservice teachers, inservice teachers).

Forming Statewide TGM Networks

I could relate to Mia's excitement to learn about the Tactical Games Model (TGM) and see others using TGM to teach sport. Early on in my learning, I realized that TGM was an innovation that physical education teachers' either: (a) did not know about or (b) chose not to use/try out in the schools. Attending the Fourth International Conference for Teaching Games for Understanding (TGfU) in Vancouver, Canada was an important point in my development because I was able to meet innovative teachers, teacher educators, and researchers who were experimenting with a form of TGM in the United States, Canada, England, China, Australia, and the Netherlands.

After becoming involved in the Maryland Physical Education Community, I soon discovered small pockets of individual teachers, departments, and districts who were exploring the possibilities for TGM implementation and implications for their program and curriculum. Hearing about and meeting these innovative physical education teachers gave me the idea to find ways to reach out to other physical educators to form a Maryland TGM network of teachers (Carpenter, 2009).

A successful network would connect teachers and physical education professionals interested in experimenting with and already using TGM across the state. The following strategies could be considered when forming a statewide TGM network: (a) website with lesson, block, and unit plans, (b) alternate professional development sessions that allow teachers from different districts to learn together, (c) list of

experienced TGM teachers to connect teachers for co-teaching experiments, and (d) action research/research studies that study faithful implementation and student outcomes.

Developing a TGM Guidebook

After the TGM Ultimate unit, I am sensitive to teacher needs and recognize that: (a) designing and teaching a sport unit with an instructional model is challenging and (b) conceptualizing the constructivist nature of TGM takes time. I developed a TGM guidebook (Appendix KK): 'The Tactical Games Model (TGM) = An Instructional Model + Constructivist Approach to Teaching and Learning Sport' to support inservice teacher implementation of a 'reasonable version' of TGM in the schools.

The contents of this guidebook include: (a) TGM as an instructional model, (b) TGM as a constructivist approach to teaching and learning sport, (c) rationale for making the shift to TGM, (d) summary of important TGM findings, (e) recommendations and focus on central themes, (e) eight-day TGM Ultimate unit planning tools, (f) sample Game Performance Assessment Instrument (GPAI) tool, and (g) self-evaluation tools to establish faithful use of TGM. Each section is intended to advocate increased use of TGM and support TGM experimentation out in the schools. For example, the original 5th grade TGM Ultimate block plan and lesson plans are included as a resource for inservice teachers to test and modify out in the schools.

Conclusion

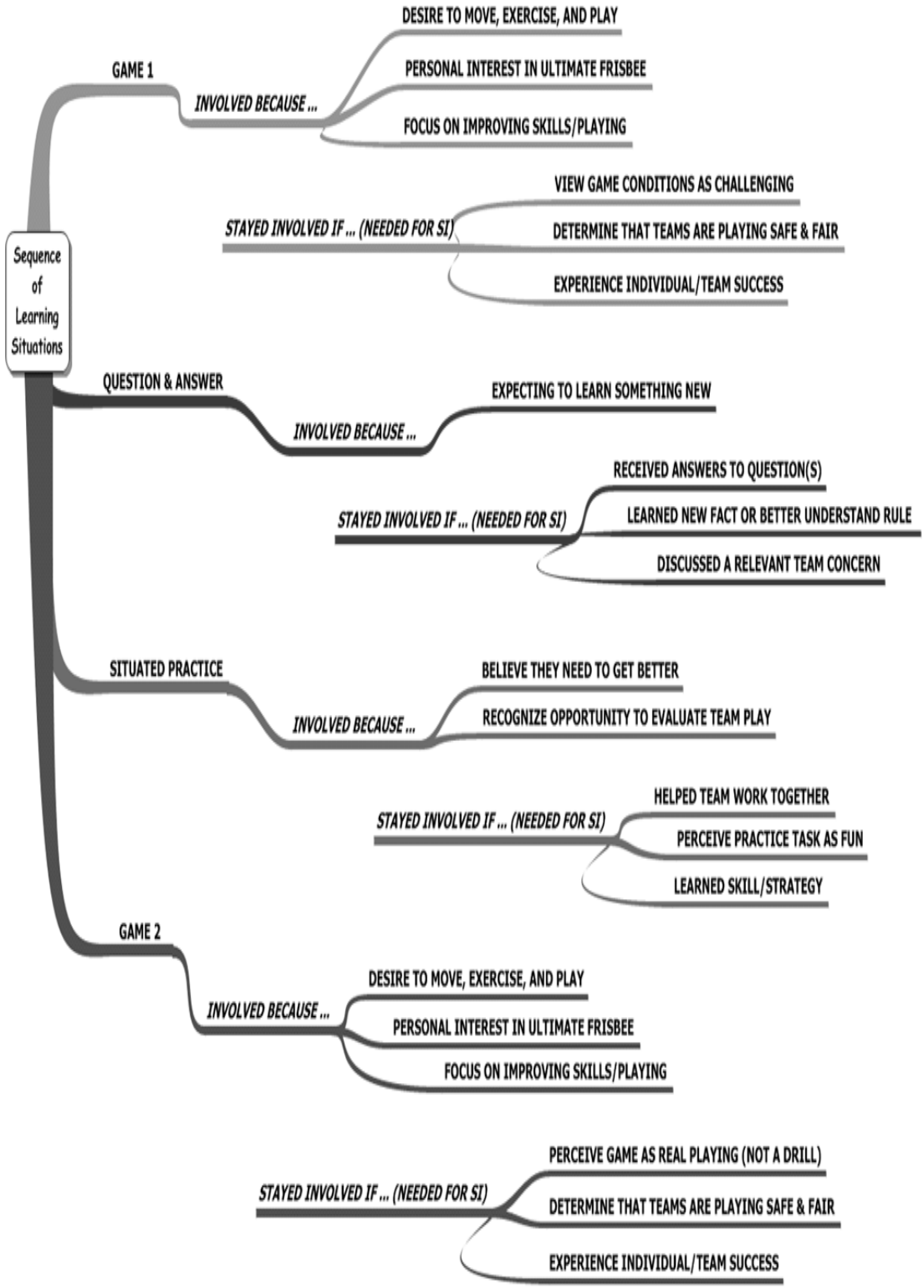
As a former K-8 physical education teacher turned teacher educator, I have determined that the Tactical Games Model (TGM) is an example of best practice in teaching and learning (Zemelman, Daniels, & Hyde, 1998) sport in physical education. My rationale for this conclusion is that if used faithfully, TGM compliments Quality

Physical Education (NASPE, 2004), supports appropriate practices in high school physical education (NASPE & MASSPEC, 2004), and parallels 'best practice' recommendations for maximizing student learning in schools.

All students deserve to have positive sport experiences in physical education class. Teachers who choose to learn and experiment with the Tactical Games Model (TGM) as a way to improve sport experiences in physical education are: (a) shifting toward best practice in teaching and learning and (b) taking 'The Road Less Traveled' (Zidon, 1991) in physical education. Teacher educators play a critical role in supporting preservice and inservice teacher learning and experimentation with TGM out in the schools.

Figure 4: Characteristics of a Positive Participant – Games Playing Experience

Figure 5: Requirements for Situational Interest (SI) /
Positive Participant – TGM Learning Situation Experiences



APPENDIX A

INITIAL EMAIL EXCHANGES FOR SETTING UP THE TACTICAL GAMES MODEL (TGM) STUDY AT CLIFFSIDE ELEMENTARY

Dear ***NATE***. My name is Eric Carpenter and I am a teacher education doctoral student at the University of Massachusetts Amherst. The reason for emailing you is to inquire about conducting a research study with the PE teacher at ***CLIFFSIDE ELEMENTARY***.
My background is teaching physical education and I have been learning some new ways to teach physical education during my time at UMass Amherst. Specifically, I have been learning about the instructional model called the Tactical Games Model (TGM) with Linda Griffin. TGM is a learner centered approach to teaching physical education where the teacher guides students through a game-Q&A-practice-game sequence. Within this purposeful sequence students are asked to problem solve and think critically about solutions to tactical problems (e.g., maintain possession of an object during game play).

TGM represents an area I would like to both practice in my own teaching and conduct research. My goal is to find a local school that will allow me to enter to teach or co-teach a sixth grade physical education unit (2 - 3 weeks) in February. In addition to practicing TGM, I will be investigating student motivation and student learning within a TGM physical education unit. I am presently working on my dissertation proposal for my committee but I have a solid plan so I am able to meet and answer questions if you and the physical education teacher would consider the possibility of allowing me to conduct a study at ***CLIFFSIDE ELEMENTARY***. Thank you very much for your time and I look forward to your response.

-Eric

Dear Eric,
This sounds like a great proposal! I am forwarding it on to ***MIA***, our physical education teacher. After you two connect please stop by the school someday to fill out a CORI form which will allow you to volunteer in our school.
- ***NATE***

Hi ***NATE***. That is excellent news that you would be willing to have me discuss my research ideas with ***MIA*** and enter the school as a volunteer and researcher at ***CLIFFSIDE ELEMENTARY***. I look forward to talking with you and ***MIA*** about my research goals, answering all of your questions, and learning about the appropriate steps to enter the school as a volunteer.

Feel free to email or call with questions or comments. Thanks for your support and I hope you have a nice holiday break.

-Eric
XXX-XXX-XXXX

Hi Eric,

My name is ***MIA*** and I am the Physical Education teacher at ***CLIFFSIDE ELEMENTARY***. I understand that you want to do some work here with the 6th graders. I was wondering when would be a good time for us to sit down and discuss what we need to make it happen. You can come to ***CLIFFSIDE ELEMENTARY*** or call me at XXX-XXX-XXXX or XXX-XXX-XXXX. Hope to hear from you soon and happy holidays.

Neusa

Hi ***MIA***. Thanks very much for your email. I am a physical education teacher turned doctoral student finishing up at UMass Amherst. I am studying teacher education and one of my requirements is to conduct research.

The purpose of the research study that I am proposing is for me to teach or co-teach a 10-15 day physical education unit to sixth graders using the Tactical Games Model (TGM). TGM is interesting to me because it uses a Game 1-Question & Answer-Practice-Game 2 sequence for each PE lesson and emphasizes student problem solving within the sequence. In addition to teaching or co-teaching a PE unit using TGM, I will be investigating student motivation and learning within a TGM unit.

My goal is to start my study in February. I am still working on details and continue working on a draft of my proposal for a research study for my UMass Amherst committee. It will be a qualitative research study which includes surveys, interviews, and videotaping.

- What days and times would work best for me to meet with you at ***CLIFFSIDE ELEMENTARY*** in early January?

- How many times a week do sixth grade students have PE?

- How long are the PE classes?

I hope that my work sounds interesting and I look forward to sharing my ideas, hearing your opinion about what works for you, and answering your questions about my plans. Have a great holiday break and I will give you a call when I return in early January.

-Eric

APPENDIX B

PARTICIPANT-OBSERVER INFORMED CONSENT

Dear Mia,

As a doctoral student in the Teacher Education and School Improvement Program at the University of Massachusetts-Amherst I am required to conduct research in the field of education. My research interests include examining student motivation and learning in physical education and using the Tactical Games Model (TGM) to teach physical education. I have contacted you because you seemed open to learning about new ways to teach physical education.

My study time frame includes five weeks. The two-week 6th grade ultimate unit (May 14-8 & June 4–8) will be the main focus of this study. Also, I will conduct a 15-minute individual interview with eight students during the two weeks in between the ultimate/physical education weeks. Finally, I would like to conduct 20-minute focus group interviews with small groups of students (3-4 students) about their experiences during the TGM ultimate the week after the unit ends.

The methods for collecting data from **you, the teacher** will be as follows:

- **An initial 45 minute interview with you before the ultimate unit (audio-taped).**
- **Your daily notes on your observations of my TGM teaching and your perceptions about student motivation and learning during each TGM ultimate lesson**
- **Informal conversations that we have about your observations of my TGM teaching and your perceptions about student motivation and learning during each TGM ultimate lesson.**
- **A 45 minute midpoint interview with you between week 1 and week 2 of the ultimate unit (audio-taped).**
- **A 45 minute exit interview with you after the ultimate unit (audio-taped).**

The methods for collecting data from **your students** will be as follows:

- **Students will be asked to complete a brief survey about their goals and personal interest in physical education at the beginning and end of the ultimate unit.**
- **Daily videotaped observations of student game performance on ultimate lessons.**
- **Written and/or verbal responses to a daily question about their motivation to participate and learning during a lesson.**
- **A 15-minute individual interview with eight students during the weeks between ultimate weeks (audio-taped).**
- **20-minute focus group interviews with small groups of student (3-4) volunteers after the ultimate unit (audio-taped).**

The timing of the data collection methods will be agreed upon by teachers' involved so that the study does not disrupt student schedules, student learning, and the daily routines at Cliffside Elementary School. All TGM ultimate classes will be videotaped and all interviews with you and your students will be audio-taped as a way to increase the authenticity of the interviewee's words and transcribed after the interview.

The interview days and times will be agreed upon by us to ensure flexibility for the meeting times. As part of the informed consent form, I am asking you for your permission to use your words (anonymously) from the interviews and informal conversations in my reports. The student individual interviews and focus group interviews will also be tape recorded so I can focus on what the students are saying about motivation and learning in ultimate.

Information collected by me, the researcher, will be used for University of Massachusetts-Amherst dissertation requirements, professional presentations at physical education conferences, and a future journal publication. Video clips may be shown under my supervision to preservice or inservice teachers learning to teach physical education using the Tactical Games Model. In order to ensure your privacy, the privacy of your school, and the privacy of your students, I will always use pseudonyms when writing about or sharing results of this study. I intend to use the data collected during this study to better understand student motivation and learning within an ultimate unit taught using the Tactical Games Model. A summary of my study will be distributed to you after the school year and after the completion of data analysis. You will remain anonymous in all reporting of data.

Your signature on this informed consent form acknowledges that you have read and understand the information provided in this informed consent letter. Also, by signing you realize that the researcher plans to use your words and statements anonymously (e.g., the teacher said "I think the students are motivated by…"). All audio-taped and video-taped data gathered from you, the teacher and your students will remain under the supervision and care of the researcher and pseudonyms will be used to protect teacher, student, and school privacy.

This study is voluntary so you, your students, and the parents/guardians have the right not to join or withdraw from the study at any time without prejudice. Also, the researcher encourages all participants to ask questions if they are unclear about the study or their role in the study. After you have signed the form, I will make a copy of the informed consent form for your records.

As a future researcher and physical education teacher education professional I hope to learn more about and inform other teachers on the topic of the Tactical Games Model to teach physical education and the role of student motivation in physical education. Feel free to contact me if you have any questions or concerns about my study. Also, my advisor's name is Linda Griffin and she can be reached via email at xxxxxx@educ.umass.edu or phone (xxx) xxx-xxxx in case you have questions about the research process at the University of Massachusetts-Amherst or questions about the quality of my work. Thank you very much for your participation.

Teacher, participant observer signature: _____Date:_____

Eric J. Carpenter
Phone (xxx) xxx-xxxx Email xxxxxx@educ.umass.edu

APPENDIX C

COVER LETTER AND PARENT/STUDENT INFORMED CONSENT FORM

5/15/07

Dear parent(s) or guardian,

My name is Eric Carpenter and I am a doctoral student in the Teacher Education and School Improvement Program at the University of Massachusetts-Amherst. The reason for this letter is to inform you that your child's physical education teacher, ***MIA***, has agreed to let me teach an ultimate unit to the 5th grade students. In addition to teaching, I will be conducting a small-scale study that asks students to talk about their motivation to participate and learn during the ultimate unit. A common description of motivation is, *something that gets us moving and keeps us involved in a task.*

Ultimately, I want students who have permission to discuss their levels of motivation during ultimate classes. The actual study will take place over three weeks. The 5th grade ultimate unit will last for two weeks (week of May 21-25 & week of June 11–15) and I will conduct brief 10-minute interviews with students during the weeks that students do not have ultimate/physical education classes. Also, I would like to talk to small groups (3-4 students) about their experiences during the last day of the unit.

NATE, the ***CLIFFSIDE ELEMENTARY*** principal and the ***WESTERN REGIONAL School District Administration*** have approved my study so I am contacting parents to ask permission for your son/daughter to be part of my study on student motivation during an Ultimate unit. Please review the attached informed consent form.

This informed consent form allows your child to participate in this study. Thank you very much for taking the time to review and return the attached informed consent form. I will work closely with ***TABITHA JONES***, the 5th grade classroom teacher to make sure that this study goes well and does not interfere with the 5th grade schedule. Feel free to contact me if you have questions about my study.

Sincerely,

Eric Carpenter
University of Massachusetts-Amherst
Phone (xxx) xxx-xxxx
Email xxxxxx@educ.umass.edu

Parent/Student Informed Consent

Dear parent(s) or legal guardian and student,

My name is Eric Carpenter and I am a doctoral student in the Teacher Education and School Improvement Program at the University of Massachusetts-Amherst. As a doctoral student, I am required to conduct research in the field of physical education. The reason for this letter is to inform you that your child's physical education teacher, ***MIA***, has agreed to let me work with her 5th grade students at ***CLIFFSIDE ELEMENTARY***. Specifically, I will be using the Tactical Games Model (TGM) to teach a two-week Ultimate unit. The goal of TGM is for students to identify and solve problems occurring during game play in order to improve their overall game performance. I want to collect information from students to better understand how TGM influences student motivation and learning.

I am asking for your permission to allow your son/daughter to participate in this study. The study will last for three weeks and my methods for collecting information from the students (your son or daughter) will be as follows:

- **Two 8-question surveys on student goals and personal interests in physical education. One survey will be administered at the beginning of the ultimate unit and one survey will be administered at the end of the ultimate unit.**
- **Videotaping each of the eight ultimate lessons to analyze student game performance and evaluate my own teaching.**
- **Brief written and/or verbal responses to a daily question (i.e., *"Why were you energized or not energized to get involved and play in the GAME 1? Please explain.").***
- **One 10-minute individual interview (audio- taped).**
- **Focus group interviews with student volunteers from each ultimate team during the last day of the ultimate unit (audio-taped).**

Information collected by me, the researcher, will be used for my University of Massachusetts-Amherst dissertation, professional presentations, and a future journal publication. Brief video clips of the researcher's teaching may be incorporated into a professional presentation to a small group of teachers interested in the Tactical Games Model. The 10-minute interviews and team focus group interview will be tape recorded (instead of taking notes) so the researcher can focus on what the students are saying about motivation and ask them questions about their interests and goals during the ultimate unit. Only first names are needed during the study for interviews and focus group interviews so the researcher can organize materials.

I am asking you for your permission to use your son/daughters words (anonymously) from their surveys, interviews, and written/verbal responses to daily question in reports of the study data. Also, I am asking your permission to videotape your son or daughter during the eight ultimate lessons. **I do not anticipate any vulnerability for students or other participants and in order to ensure privacy, the students, the school, and school location will always be described using pseudonyms (i.e., "Student A at Cliffside Elementary in the Northeast said …") when I write about or discuss the study. All audio-taped and video-taped data gathered from your child will remain under the supervision and care of the researcher.** I intend to use the data collected to better understand student motivation and learning within an ultimate unit taught using the Tactical Games Model (TGM).

As a way to further protect your son or daughter, only I will know the true identity of students participating in this study. Videotapes will only be shared with one other Teacher Education doctoral student and possibly my advisor, Linda Griffin. They will evaluate my teaching using TGM and will not know the identities of students. Also, I may incorporate brief video clips of my TGM teaching into a professional presentation to a small group of preservice and/or inservice teachers who are learning to use the Tactical Games Model. Student identities will not be used in any written, oral, or video presentations. Also, I will identify the school location as an elementary school in the Northeast and pseudonyms will be used during all presentations of data from this study.

Your completion of the statement and your signature on the bottom of this page acknowledges that you have read and understand the information provided in this letter. By signing you realize that the researcher will, 1) use student's words and statements anonymously (e.g., Student A said "I am motivated by …") and 2) videotape your child's participation in ultimate practice activities and/or games during physical education class. This study is voluntary so students have the right not to join or to withdraw from the study at any time and parents have the right to not allow their son/daughter to join or to withdraw from the study without prejudice. Data collected will only be shared with Linda Griffin, my dissertation chairperson/advisor and will in no way affect your son/daughters progress or grades. A brief summary of study results will be shared with Ms. ***MIA***, the physical education teacher once pseudonyms have been assigned to the school and students and after the completion of the school year. Parents and students are encouraged to ask questions if they have questions about the study.

As a future researcher and assistant professor of physical education teacher education I hope to learn more about and inform other teachers about the role of student motivation and learning during a Tactical Games Model (TGM) unit (i.e., Ultimate). If you have any questions or concerns about my study, you can email me at xxxxx@educ.umass.edu or call me at (xxx) xxx-xxxx. Also, my advisor's name is Linda Griffin and she can be reached via email at xxxxxx@educ.umass.edu or phone (xxx) xxx-xxxx in case you have any questions about the research process at the University of Massachusetts-Amherst or questions about the quality of my work. Thank you very much for your participation.

PARENT(s) Please print your name and the name of your child in the spaces below.

My name is _____ and I am giving my son/daughter
PRINT Parent/Guardian full name(s)

_____ at *CLIFFSIDE ELEMENTARY* School permission to
PRINT Student full name

complete two surveys, respond to a daily question during each class, participate in Ultimate classes that will be videotaped, answer questions during a 10- minute interview and a focus group interview with their teammates, and talk about the topics of motivation and learning in physical education during the study by Eric J. Carpenter from the University of Massachusetts Amherst.

*** STUDENT Signature _____ Date _____**
*** PARENT(s) Signature _____ Date _____**

Please have your son or daughter return this form to Ms. Jones on or before Monday, May 21st, 2007. Thank you for your support.

APPENDIX D

TWO PAGE SUMMARY OF STUDY FOR NATE, MIA, AND TABITHA (CLASSROOM TEACHER)

Summary of Eric's proposed work at Cliffside Elementary

As a constructivist approach to learning sport-related games in physical education, the Tactical Games Model (TGM) creates active learning experiences where students' problem solve in game situations, think critically about why each skill and movement is important, and work toward becoming better games players. Advocates of TGM credit the constructivist nature of the model as the catalyst for increased motivation and enhanced learning but more research is needed to support or challenge the expected student outcomes within TGM.

Purpose of PRACTICE TEACHING w/ 6th graders – I am practicing my TGM teaching to work on the timing of my lesson and to self assess my use of the Tactical Games Model (TGM) to teach Ultimate/physical education. No data will be collected from sixth grade students.

Purpose of TEACHING + STUDY w/ 5th graders – The purpose of this qualitative grounded theory study is to generate a new theory and/or visual model for explaining student motivation within a Tactical Games Model (TGM) Ultimate unit. Data collection will include: (a) an 8 question survey, (b) daily questionnaires about their motivation during a select learning situation/activity, (c) individual 10-15 minute interviews, and (d) videotaping student game play to assess game involvement and game performance.

Informed consent forms/Permission slips – Before I start my study I will share my UMass Amherst documents with ***NATE*** and submit the necessary district paperwork to the ***WESTERN REGIONAL*** School District Central Office. My goal is for this to happen on Tuesday, May 15th. After I complete this process I will contact ***MIA*** and ***TABITHA*** about a time on Wednesday, May 16th for me to introduce myself to the 5th grade students and ask the 5th grade students to bring an informed consent form home so their parent(s) or guardian can read and return. I will give you both a copy of the student-parent letter and informed consent form for your records.

ERIC's SCHEDULE for MAY-JULY at CLIFFSIDE ELEMENTARY

MAY 2007

MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY
	1	2	3	4
7	8	9	10	11
14 Ultimate PRACTICE Teaching w/ 6th grade PE class	15 Ultimate PRACTICE Teaching w/ 6th grade PE class	16 Ultimate PRACTICE Teaching w/ 6th grade PE class	17	18 Ultimate PRACTICE Teaching w/ 6th grade PE class
21 **Ultimate** **Teaching + Study** **5th grade PE class**	22 **Ultimate** **Teaching + Study** **5th grade PE class**	23 **Ultimate** **Teaching + Study** **5th grade PE class**	24 **Ultimate** **Teaching + Study** **5th grade PE class**	25
28 **10-15 minute interviews w/ 5th grade students**	29 **10-15 minute interviews w/ 5th grade students**	30 **10-15 minute interviews w/ 5th grade students**	31 **10-15 minute interviews w/ 5th grade students**	JUNE 1 **10-15 minute interviews w/ 5th grade students**

JUNE 2007

MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY
				1
4 Ultimate PRACTICE Teaching w/ 6th grade PE class	5 Ultimate PRACTICE Teaching w/ 6th grade PE class	6 Ultimate PRACTICE Teaching w/ 6th grade PE class	7	8 Ultimate PRACTICE Teaching 6th grade PE class
11 **Ultimate** **Teaching + Study** **5th grade PE class**	**12** **Ultimate** **Teaching + Study** **5th grade PE class**	13 **Ultimate** **Teaching + Study** **5th grade PE class**	14 **Ultimate** **Teaching + Study** **5th grade PE class**	15 Last day Cliffside Elementary
18	19	20	21	22

* The highlighted areas are items that I want to find ways to meet my research goals without disrupting school routines. Thank you both for your input and support.

APPENDIX E

EMAIL EXCHANGES W/ TABITHA, 5th GRADE CLASSROOM TEACHER

Dear Eric,

Thanks for informing me [a hand written note requesting a meeting] about your up and coming research project with my class. Of course, I would be glad to read your information.

Sincerely,
TABITHA

Thanks for the email ***TABITHA***. ***MIA*** is allowing me to teach her 5th grade physical education classes during the weeks of MAY 21-24 and JUNE 11-14 (eight classes). I will drop off a brief summary of my unit/study on Monday so I can keep you in the loop about what the 5th grade students will be doing in Ultimate unit/study.

Also, I had a few schedule related questions:

1. Is there a 10 minute block of time on Wednesday, May 16th where I could visit your classroom to introduce myself, the ultimate unit, and pass out some informed consent form-permission slips to the 5th grade students?

2. Do you have any suggestions of days and times that I could conduct 10-15 minute interviews with 5th graders during the weeks in between physical education class (May 28-June 1 & June 4-8)? ***MIA*** mentioned lunch and recess might work during these weeks and I wanted to see if you had additional ideas.

3. Can you let me know if you foresee any schedule conflicts because I need as many days as possible for my teaching/study?

Thank you very much for your time and your support. I am excited about teaching the ultimate unit and talking to 5th grade students about their motivation to participate and learn during the unit. As part of the process I want to make sure I am available to answer everyone's questions so feel free to email or call me if you have questions.

-Eric
(xxx) xxx-xxxx

APPENDIX F

TYPES OF MOTIVATION PRE-UNIT SURVEY

Student directions – Please read each statement and then circle the face that best describes how you feel about the statement.

NO WAY!! **NO** **NOT SURE** **YES** **YES DEFINITELY!!**

1. Compared to other activities/games ultimate is my favorite.

2. I am excited to play games during the ultimate classes.

3. I want to participate in activities that make me and my teammates think about ways to improve our ultimate playing.

4. My goal is to become the best ultimate player in the class.

5. My goal is to learn as much as possible and improve my ability to play Ultimate.

6. I will compare myself to other students to check to see how good I am at playing Ultimate.

7. I will give effort/try hard during practice time so that I can get better at ultimate.

8. Ultimate is a sport that I want to play in middle school, high school, and after I graduate from high school.

THANK YOU FOR FILLING OUT THIS SURVEY

APPENDIX G

TYPES OF MOTIVATION POST-UNIT SURVEY

Student directions – Please read each statement and then circle the face that best describes how you feel about the statement.

NO WAY!! **NO** **NOT SURE** **YES** **YES DEFINITELY!!**

1. Compared to other activities/games ultimate is my favorite.

2. I was excited to play games during the ultimate classes.

3. I appreciated the times when my teammates and I were asked to think about ways to improve our ultimate playing.

4. My goal was to become the best ultimate player in the class.

5. My goal was to learn as much as possible and improve my ability to play Ultimate.

6. I compared myself to other students to check to see how good I am at playing Ultimate.

7. I applied effort/tried hard during the practice time so I could get better at Ultimate.

8. Ultimate is a sport that I want to play in middle school, high school, and/or after I graduate from high school.

THANK YOU FOR FILLING OUT THIS SURVEY

APPENDIX H

DAILY TGM LEARNING SITUATION QUESTIONNAIRE
for GAME 1

First Name: _____ Day _____

1. Why were you energized or <u>not</u> energized to get involved and play in the **<u>GAME 1</u>**? Please explain.
_____
_____
_____
_____

2. Were you excited to learn or <u>not</u> excited to learn during the **<u>GAME 1</u>**? Please explain.
_____
_____
_____
_____

3. What did you actually learn during **<u>GAME 1</u>**? Please give examples.
_____
_____
_____
_____

APPENDIX I

DAILY TGM LEARNING SITUATION QUESTIONNAIRE
for Q & A

First Name: _____ Day _____

1. Why were you energized or <u>not</u> energized to get involved in the **<u>QUESTION TIME</u>**? Please explain.
   _____
   _____
   _____
   _____

2. Were you excited to learn or <u>not</u> excited to learn during the **<u>QUESTION TIME</u>**? Please explain.
   _____
   _____
   _____
   _____

3. What did you actually learn during **<u>QUESTION TIME</u>**? Please give examples.
   _____
   _____
   _____
   _____

APPENDIX J

DAILY TGM LEARNING SITUATION QUESTIONNAIRE
for SITUATED PRACTICE

First Name: _____ Day _____

1. Why were you energized or <u>not</u> energized to get involved and play in the **<u>PRACTICE</u>**? Please explain.

_____
_____
_____
_____

2. Were you excited to learn or <u>not</u> excited to learn during the **<u>PRACTICE</u>**? Please explain.

_____
_____
_____
_____

3. What did you actually learn during the **<u>PRACTICE</u>**? Please give examples.

_____
_____
_____
_____

APPENDIX K

DAILY TGM LEARNING SITUATION QUESTIONNAIRE
for GAME 2

First Name: _____ Day _____

1. Why were you energized or <u>not</u> energized to get involved and play in the **<u>GAME 2</u>**? Please explain.

_____
_____
_____
_____

2. Were you excited to learn or <u>not</u> excited to learn during the **<u>GAME 2</u>**? Please explain.

_____
_____
_____
_____

3. What did you actually learn during **<u>GAME 2</u>**? Please give examples.

_____
_____
_____
_____

APPENDIX L

PROTOCOL FOR 10-MINUTE MIDPOINT INTERVIEWS WITH PARTICIPANTS

10-minute Individual Student Interview Protocol

1. Which goal describes what you are trying to accomplish during the ultimate unit?

GOAL 1 = I want to become the best ultimate player and do better than other 5th graders.

GOAL 2 = I want to try hard and practice so that I can improve each time I play ultimate.

GOAL 3 (<u>combination of BOTH goals)</u> = I want to try hard and learn and be better than other students.

2. How were you energized or <u>not</u> energized during the different parts of the ultimate lessons?

   The First Game ……... (GAME 1)

   The Time for Questions…….… (Q & A)

   Practice Time …… (Practice)

   The Game at the End of Class …. (GAME 2)

3. Do you think you are getting better at playing ultimate? Why did you improve or <u>not</u> improve?

4. Can you give me some examples of what you have learned to do during the ultimate unit?

APPENDIX M

PROTOCOL FOR FORMAL INITIAL INTERVIEW WITH MIA, PARTICIPANT-OBSERVER

Initial 45-minute Participant-Observer Interview

1. How would you define student motivation? What does positive and negative student motivation look like in physical education?

2. How do you define student learning? What does student learning and non-learning look like in physical education?

3. How would you describe the levels of student motivation and learning within the first week of the 6th grade TGM ultimate unit?

4. Can you talk about your observations of positive and/or negative student motivation and learning during the different TGM learning situations:
   - GAME 1
   - Q & A
   - PRACTICE TIME
   - GAME 2

5. Do you have any questions about my study? Is there anything else that you would like to add?

APPENDIX N

PROTOCOL FOR FORMAL MIDPOINT INTERVIEW WITH MIA, PARTICIPANT-OBSERVER

Midpoint 45-minute Participant-Observer Interview

1. How do you feel the TGM ultimate unit is going?

2. Can you tell me what you think is working or not working for the TGM ultimate unit?

3. What do you think about the types of learning situations that are created by TGM (*Game 1, Q & A, Situated Practice, and Game 2*)?

4. How are students responding to the different TGM learning situations (*Game 1, Q & A, Situated Practice, and Game 2*)?

5. What are your perceptions of levels (high levels-neutral-low levels) of student motivation and/or lack of motivation during the first week of the TGM ultimate unit?

6. What examples of student learning/improvement and/or student non-learning/lack of improvement did you observe during the first week of the TGM ultimate unit?

7. Can you think of any examples where you saw student motivation influencing student learning?

8. Is there anything else that you would like to add about student motivation or student learning during a TGM ultimate unit?

APPENDIX O

PROTOCOL FOR FORMAL EXIT INTERVIEW WITH MIA, PARTICIPANT-OBSERVER

Exit 45-minute Participant-Observer Interview

1. Do you feel that the TGM ultimate unit was successful?

2. Can you tell me what you think worked or did not work during the TGM ultimate unit?

3. What do you think about the types of learning situations that are created by TGM (Game 1, Q & A, Situated Practice, and Game 2)?

4. How did students respond to the different TGM learning situations (Game 1, Q & A, Situated Practice, and Game 2) overall?

5. What are your perceptions about the levels (high levels-neutral-low levels) of student motivation during the two week TGM ultimate unit?

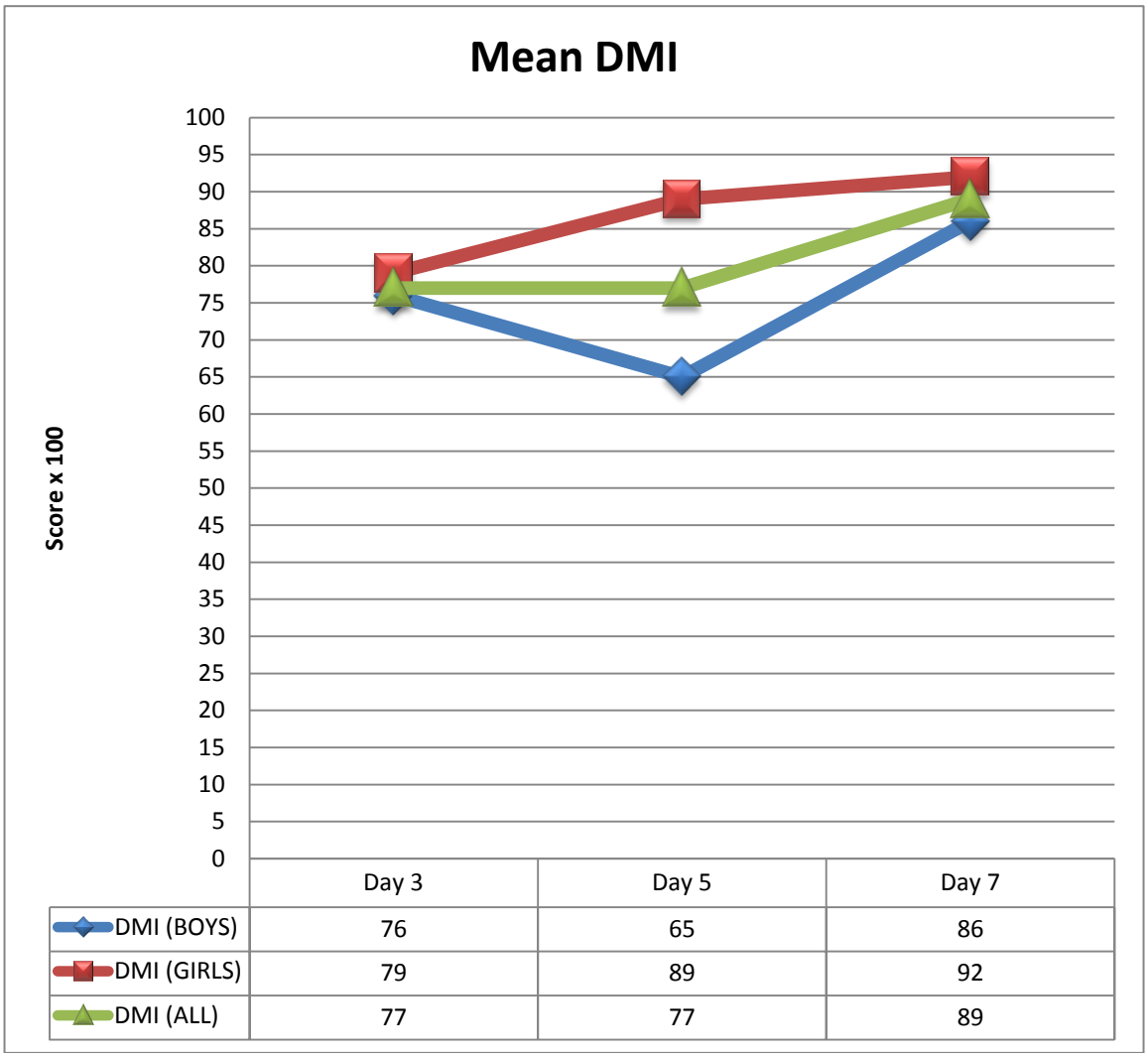
6. Can you tell me about your observations of student learning/improvement and/or non-learning/lack of improvement during the TGM ultimate unit?

7. Can you think of any examples where you observed student motivation or non-motivation influencing student learning?

8. Is there anything else that you would like to add about student motivation or student learning during a TGM ultimate unit?

APPENDIX P

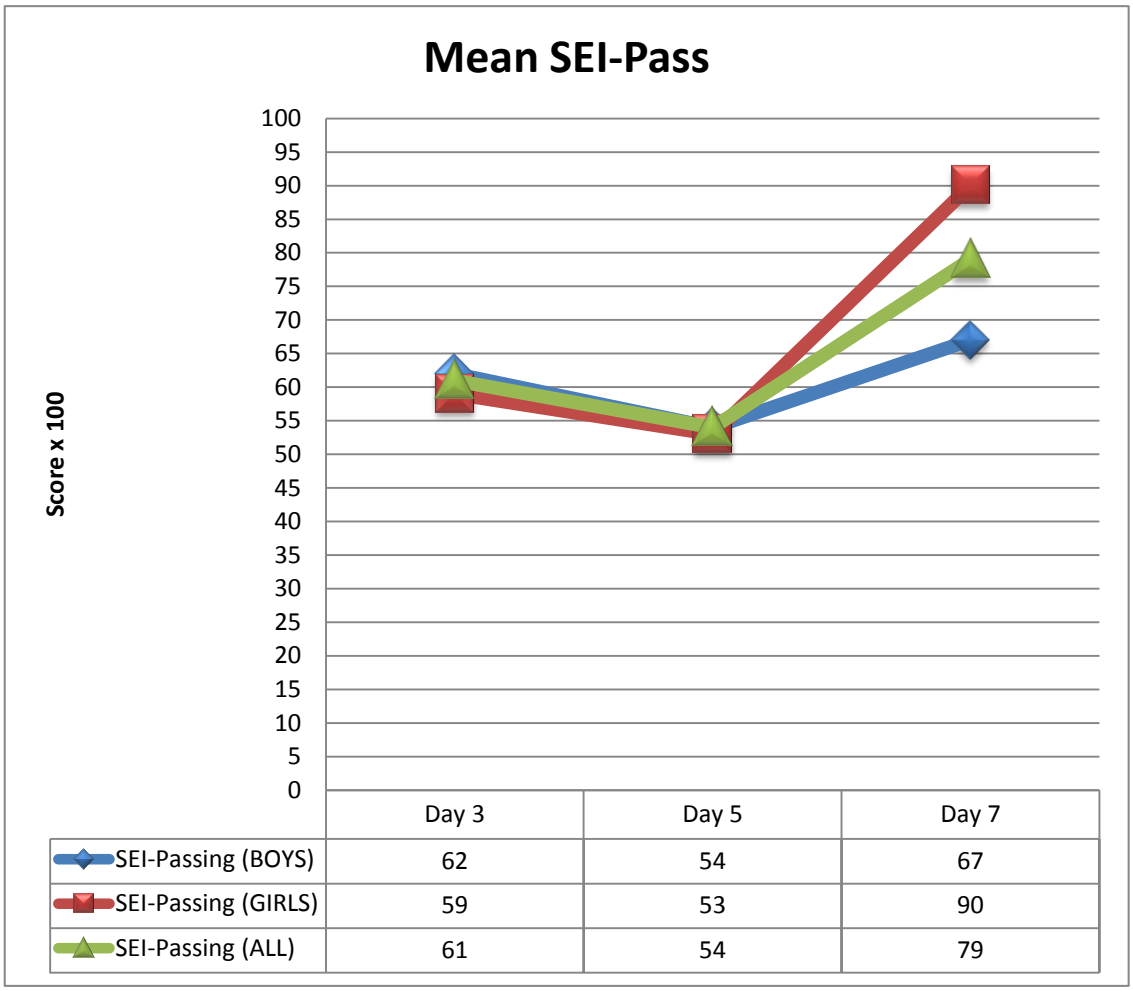
GRAPH FOR MEAN PARTICIPANT GPAI DECISION-MAKING (DMI) SCORES



	Day 3	Day 5	Day 7
DMI (BOYS)	76	65	86
DMI (GIRLS)	79	89	92
DMI (ALL)	77	77	89

APPENDIX Q

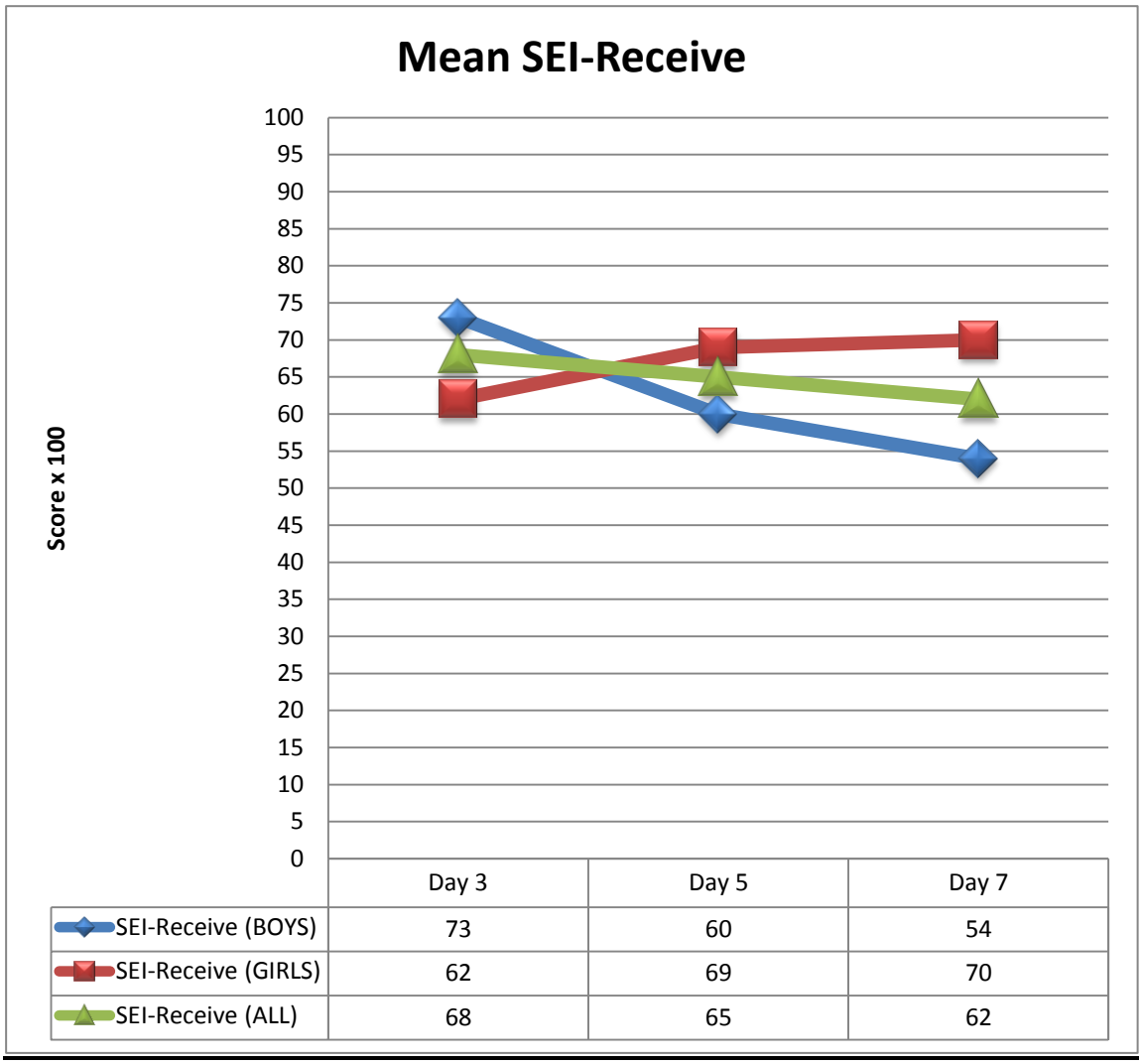
GRAPH FOR MEAN PARTICIPANT GPAI SKILL EXECUTION-PASSING (SEI-PASS) SCORES



	Day 3	Day 5	Day 7
SEI-Passing (BOYS)	62	54	67
SEI-Passing (GIRLS)	59	53	90
SEI-Passing (ALL)	61	54	79

APPENDIX R

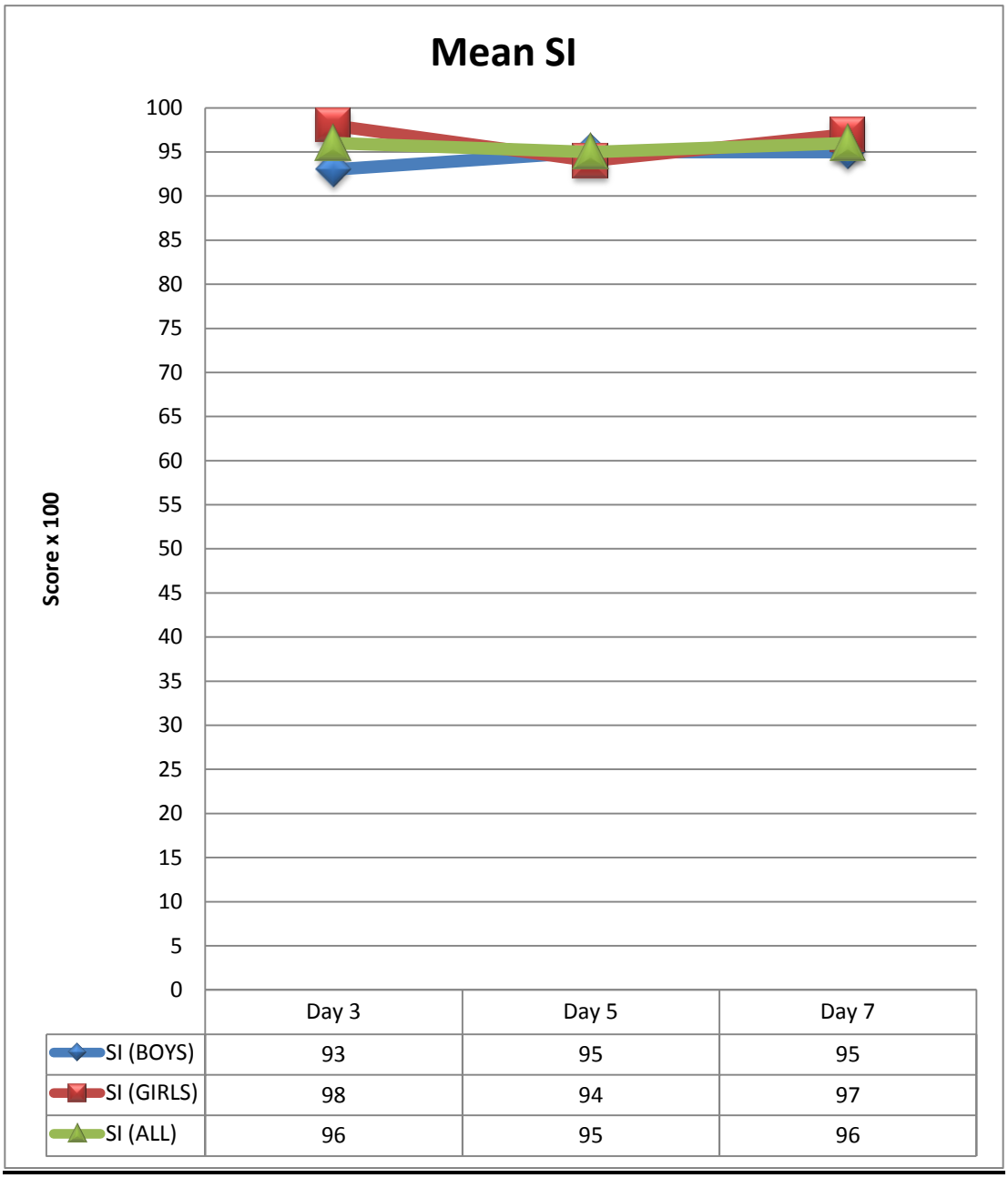
GRAPH FOR MEAN PARTICIPANT GPAI SKILL EXECUTION-RECEIVING (SEI-RECEIVE) SCORES



	Day 3	Day 5	Day 7
SEI-Receive (BOYS)	73	60	54
SEI-Receive (GIRLS)	62	69	70
SEI-Receive (ALL)	68	65	62

APPENDIX S

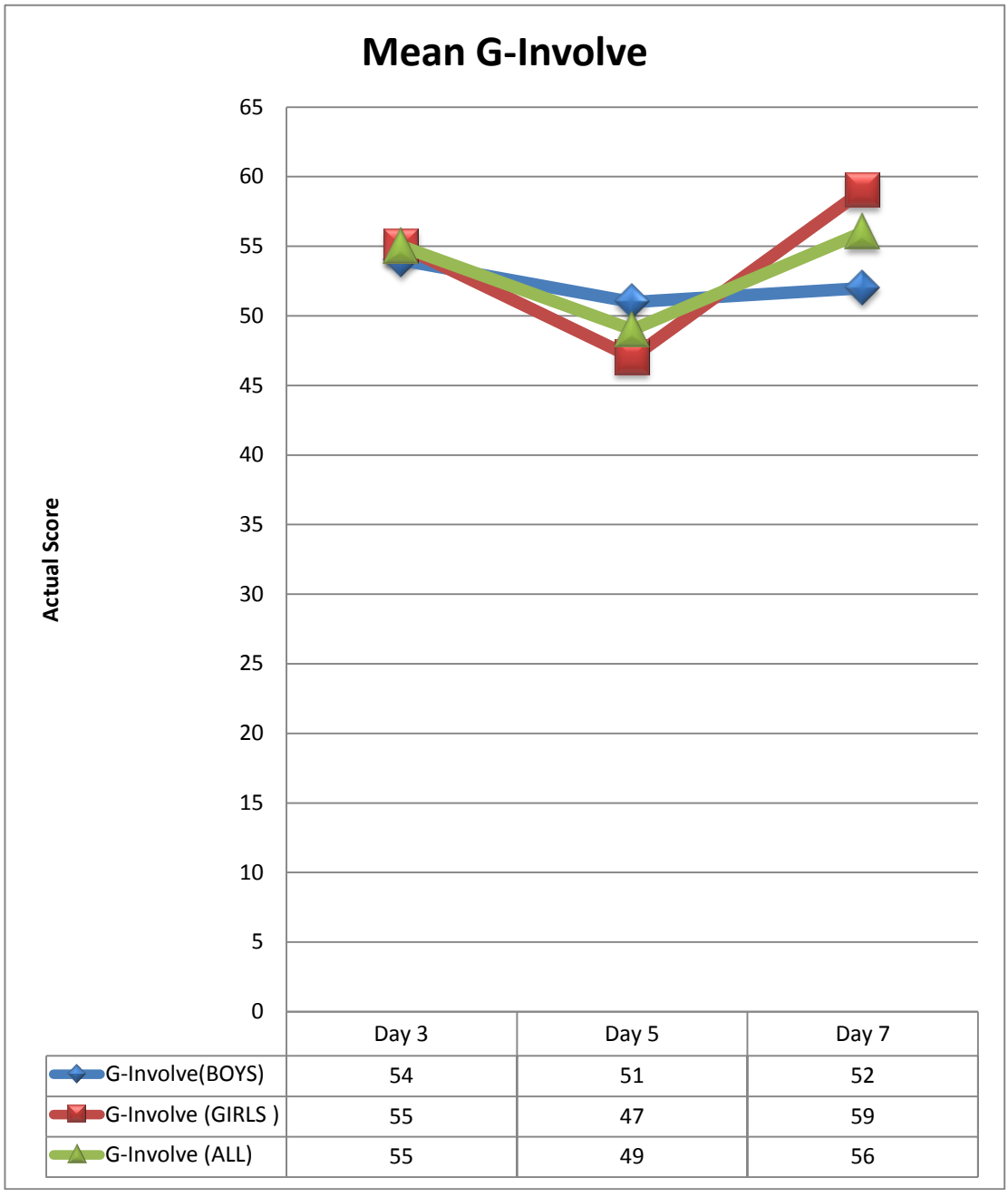
GRAPH FOR MEAN PARTICIPANT GPAI SUPPORT (SI) SCORES



	Day 3	Day 5	Day 7
SI (BOYS)	93	95	95
SI (GIRLS)	98	94	97
SI (ALL)	96	95	96

APPENDIX T

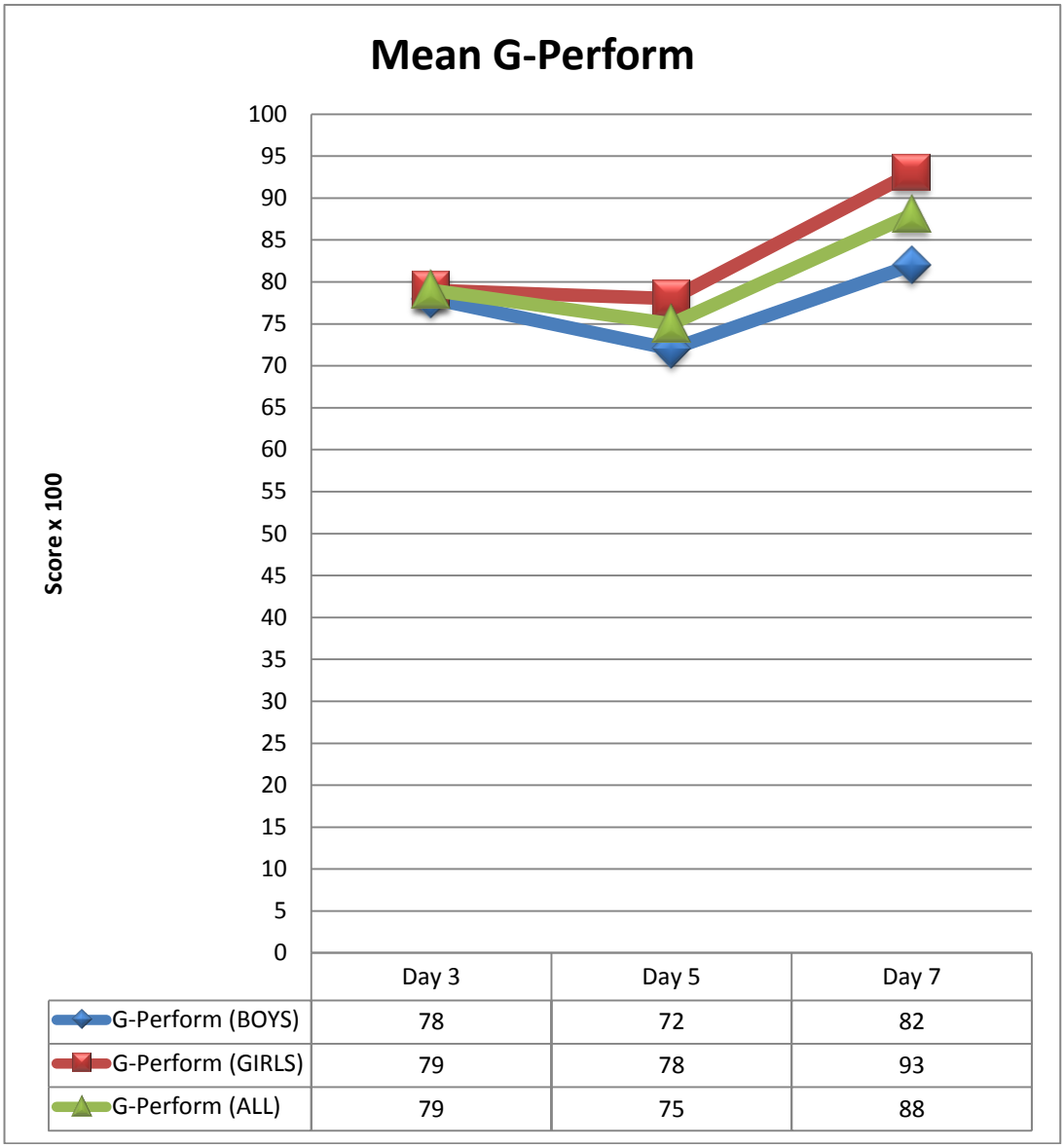
GRAPH FOR MEAN PARTICIPANT GPAI GAME INVOLVEMENT (G-INVOLVE) SCORES



	Day 3	Day 5	Day 7
G-Involve(BOYS)	54	51	52
G-Involve (GIRLS)	55	47	59
G-Involve (ALL)	55	49	56

APPENDIX U

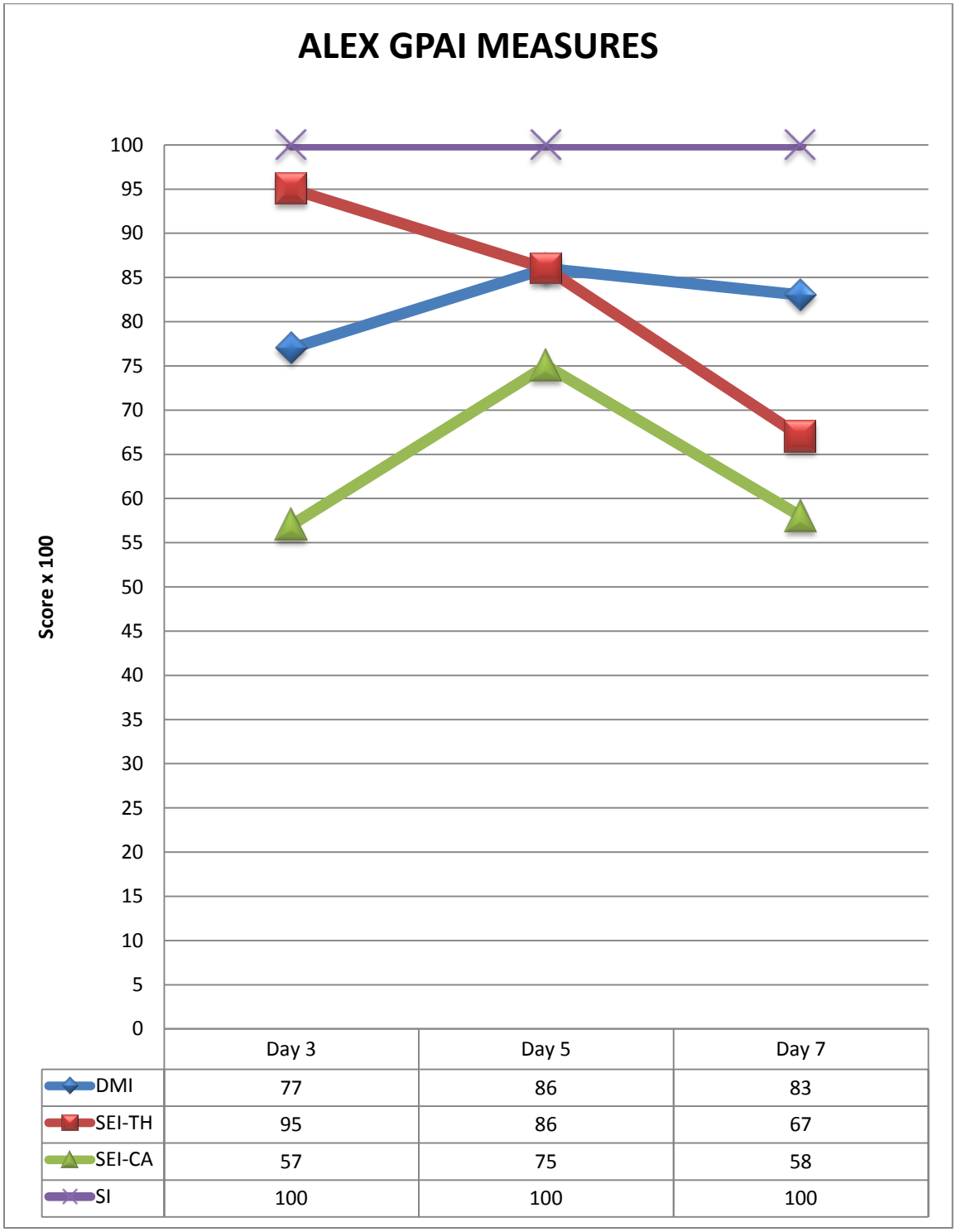
GRAPH FOR MEAN PARTICIPANT GPAI GAME PERFORMANCE (G-PERFORM) SCORES



	Day 3	Day 5	Day 7
G-Perform (BOYS)	78	72	82
G-Perform (GIRLS)	79	78	93
G-Perform (ALL)	79	75	88

APPENDIX V1

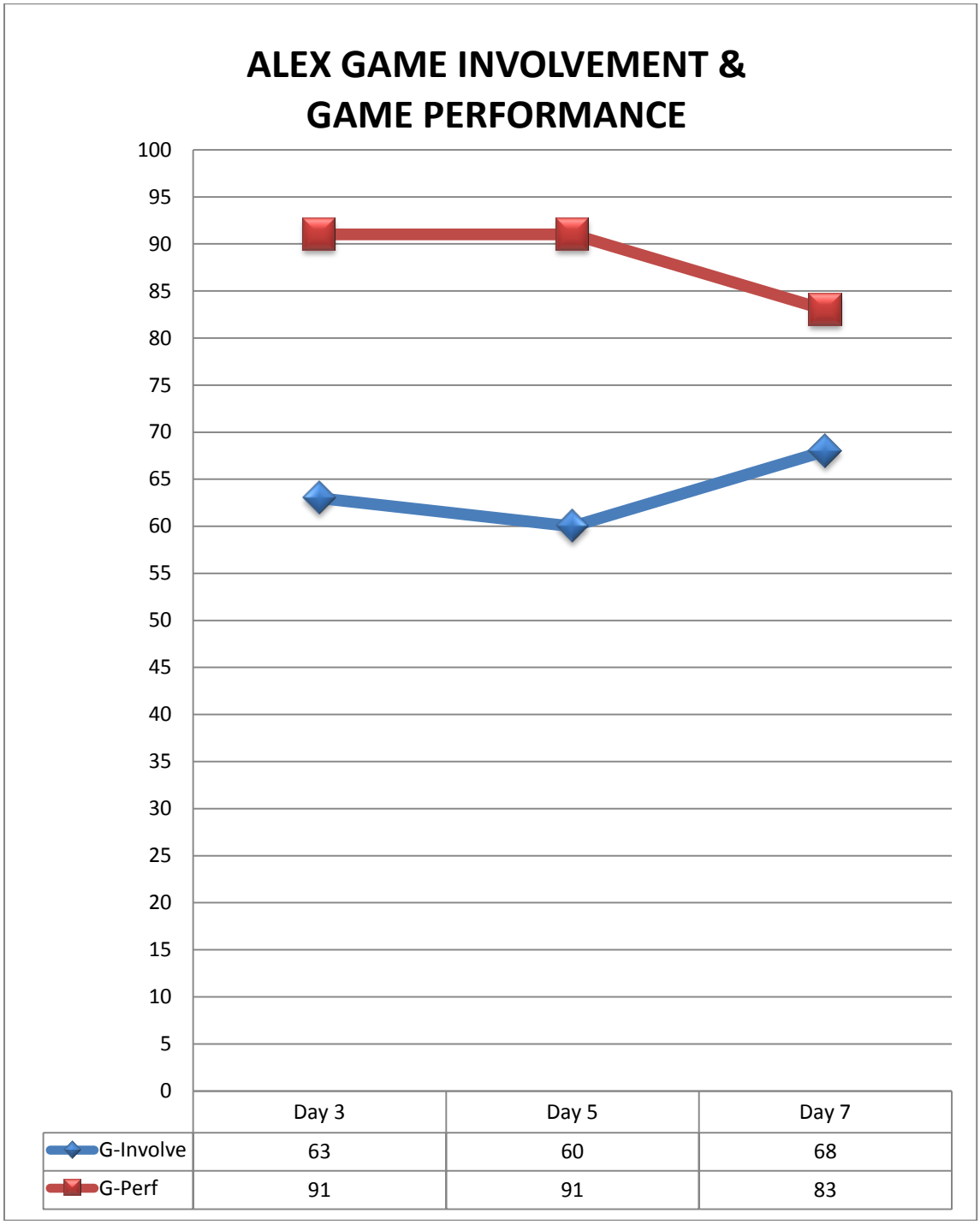
ALEX GPAI MEASURES



	Day 3	Day 5	Day 7
DMI	77	86	83
SEI-TH	95	86	67
SEI-CA	57	75	58
SI	100	100	100

APPENDIX V2

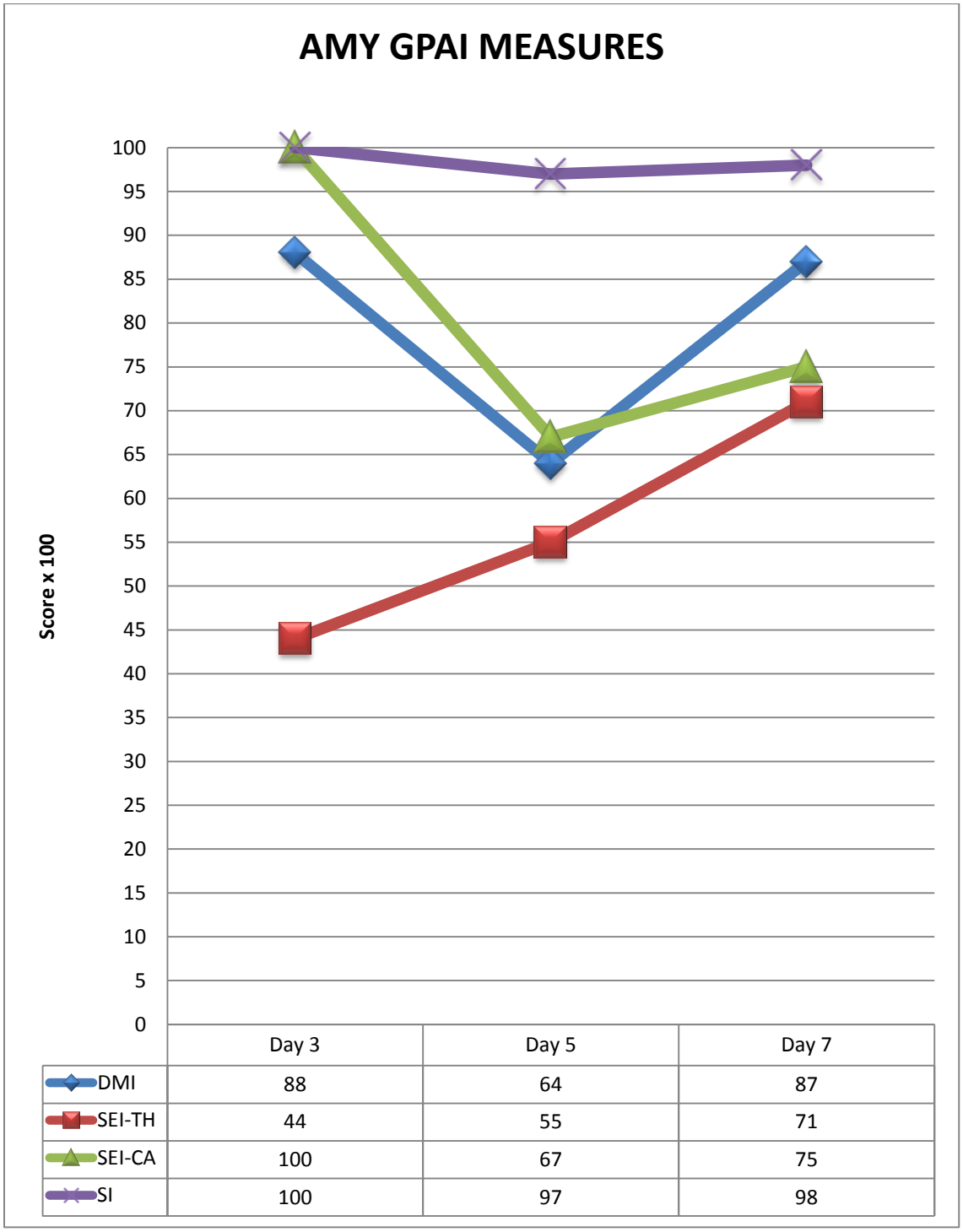
ALEX GAME INVOLVEMENT & GAME PERFORMANCE



	Day 3	Day 5	Day 7
G-Involve	63	60	68
G-Perf	91	91	83

APPENDIX W1

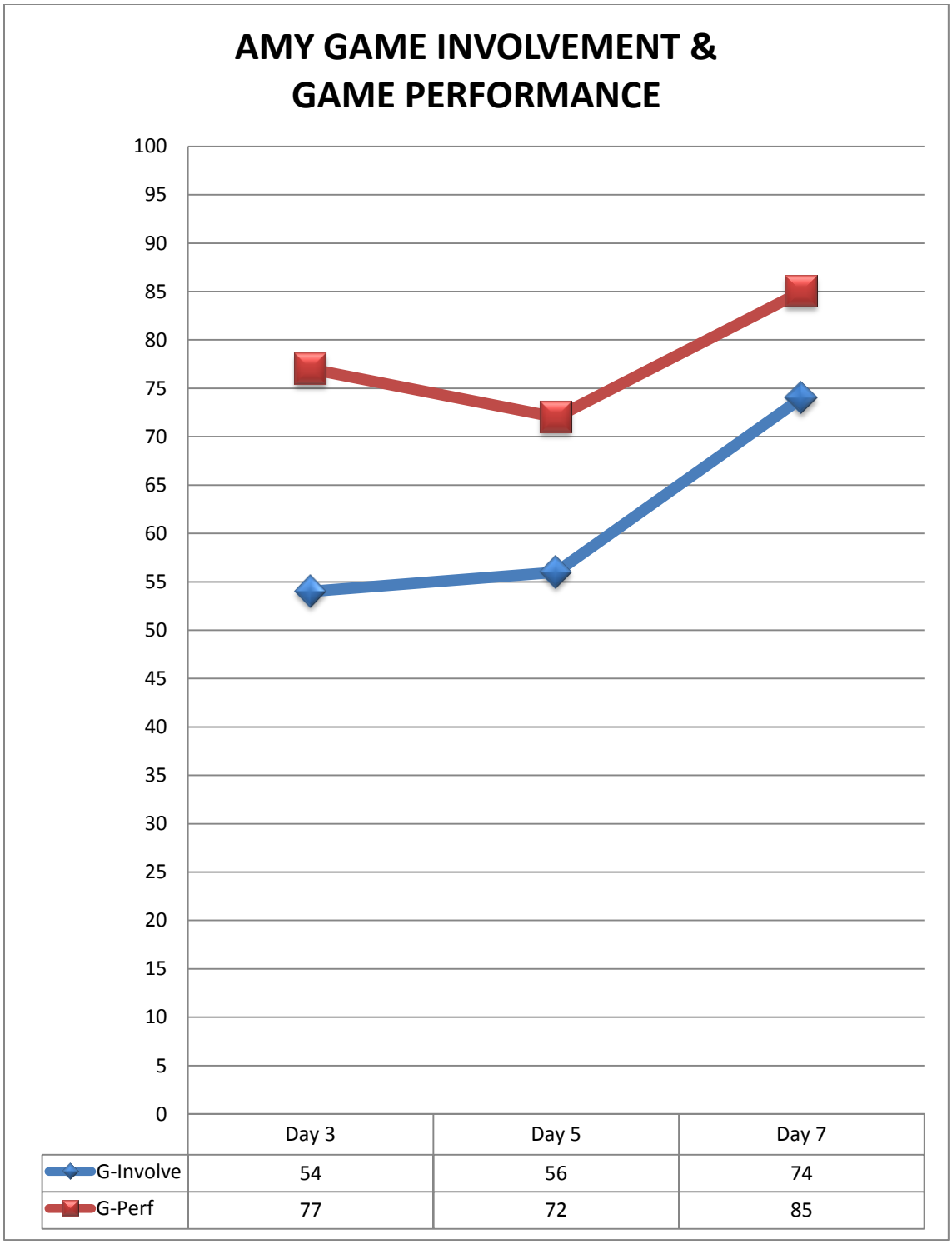
AMY GPAI MEASURES



	Day 3	Day 5	Day 7
DMI	88	64	87
SEI-TH	44	55	71
SEI-CA	100	67	75
SI	100	97	98

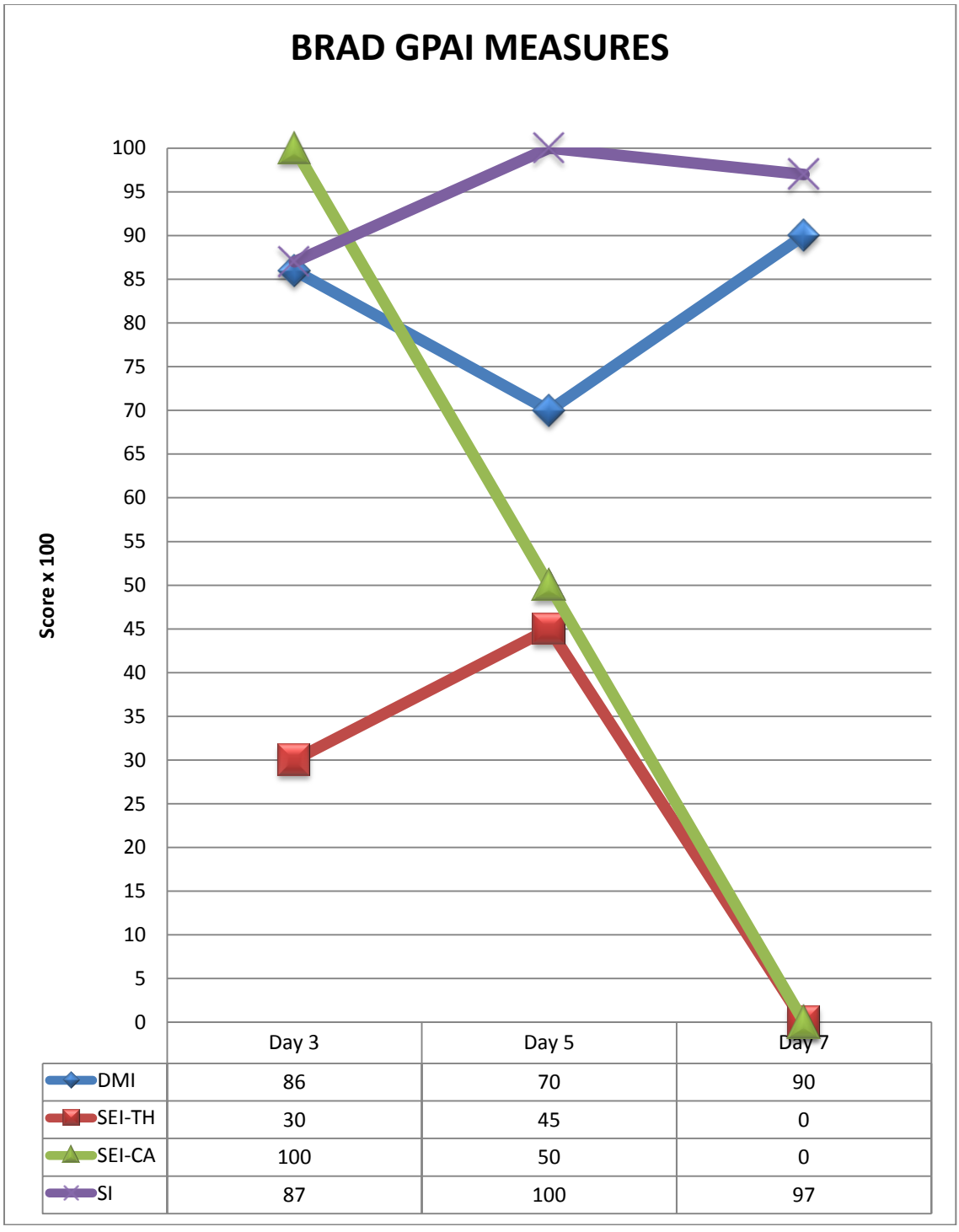
APPENDIX W2

AMY GAME INVOLVEMENT & GAME PERFORMANCE



APPENDIX X1

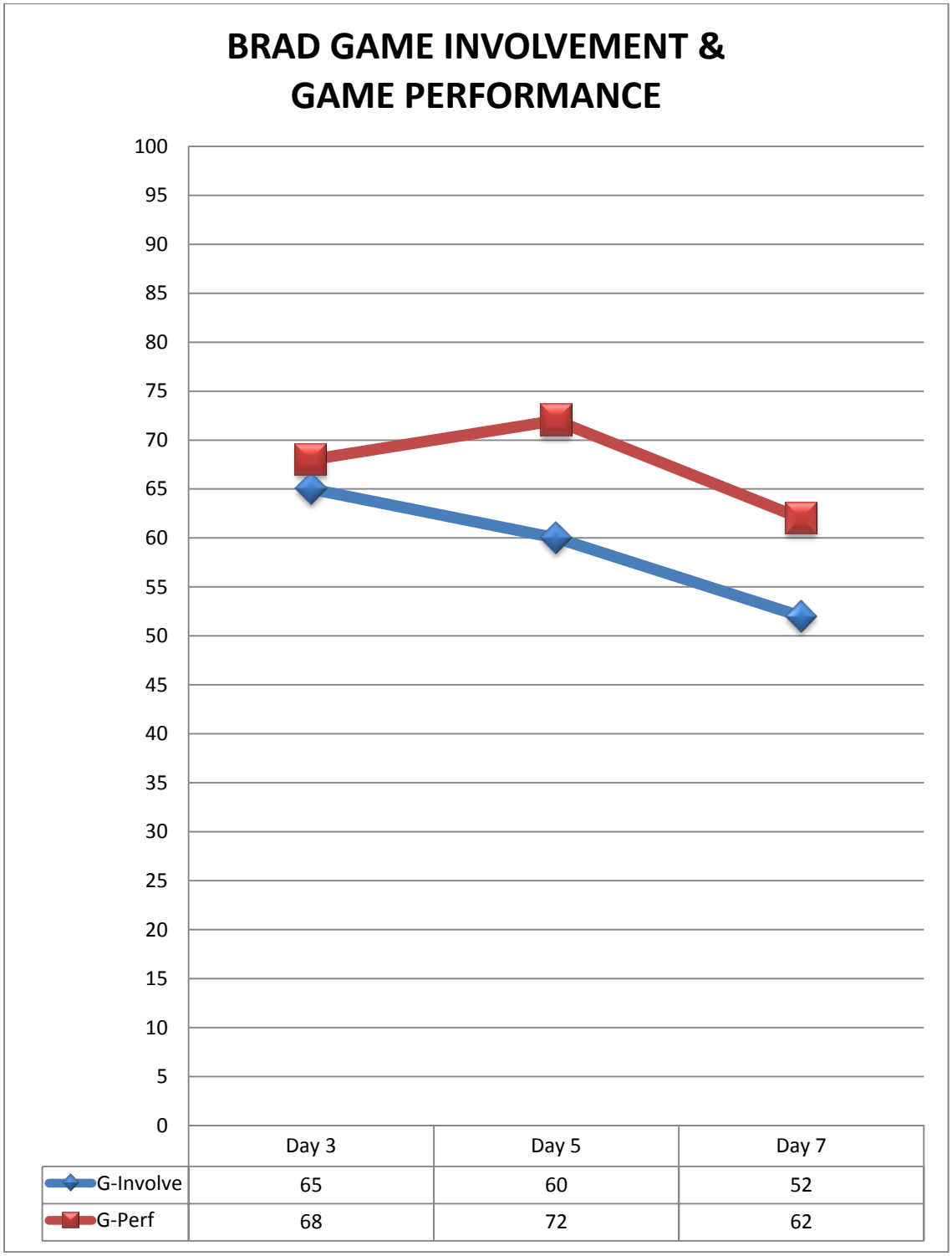
BRAD GPAI MEASURES



	Day 3	Day 5	Day 7
DMI	86	70	90
SEI-TH	30	45	0
SEI-CA	100	50	0
SI	87	100	97

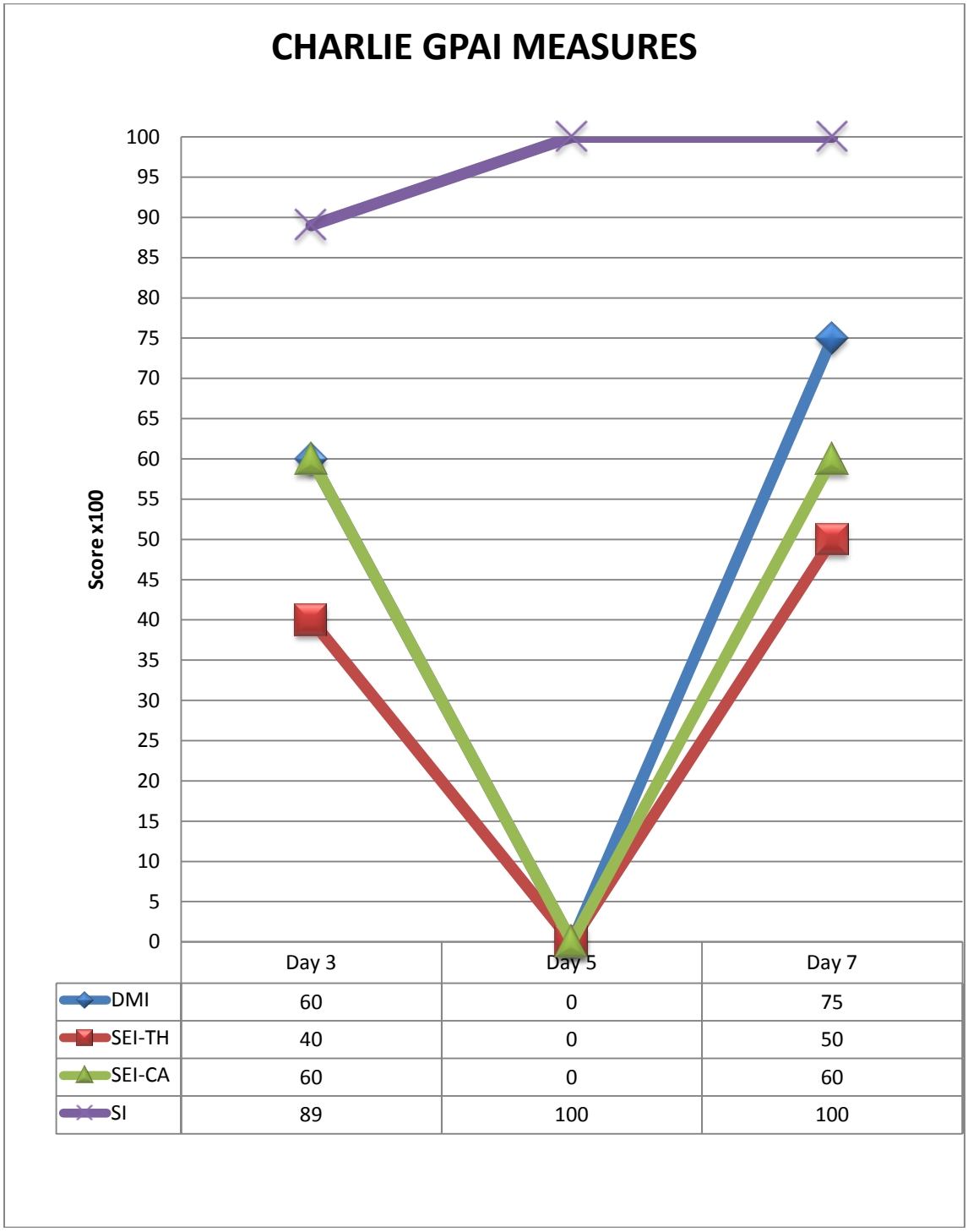
APPENDIX X2

BRAD GAME INVOLVEMENT & GAME PERFORMANCE



APPENDIX Y1

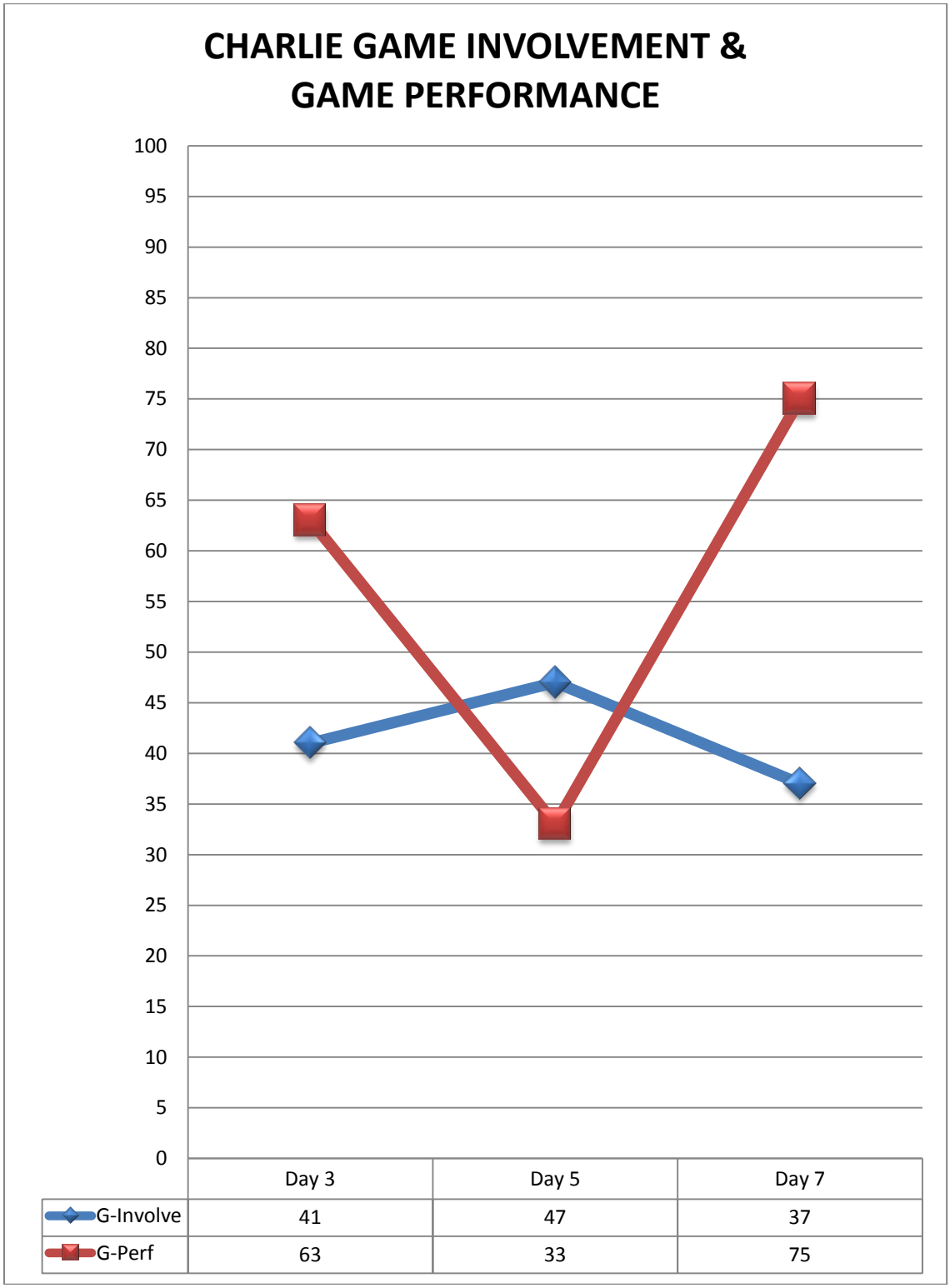
CHARLIE GPAI MEASURES



	Day 3	Day 5	Day 7
DMI	60	0	75
SEI-TH	40	0	50
SEI-CA	60	0	60
SI	89	100	100

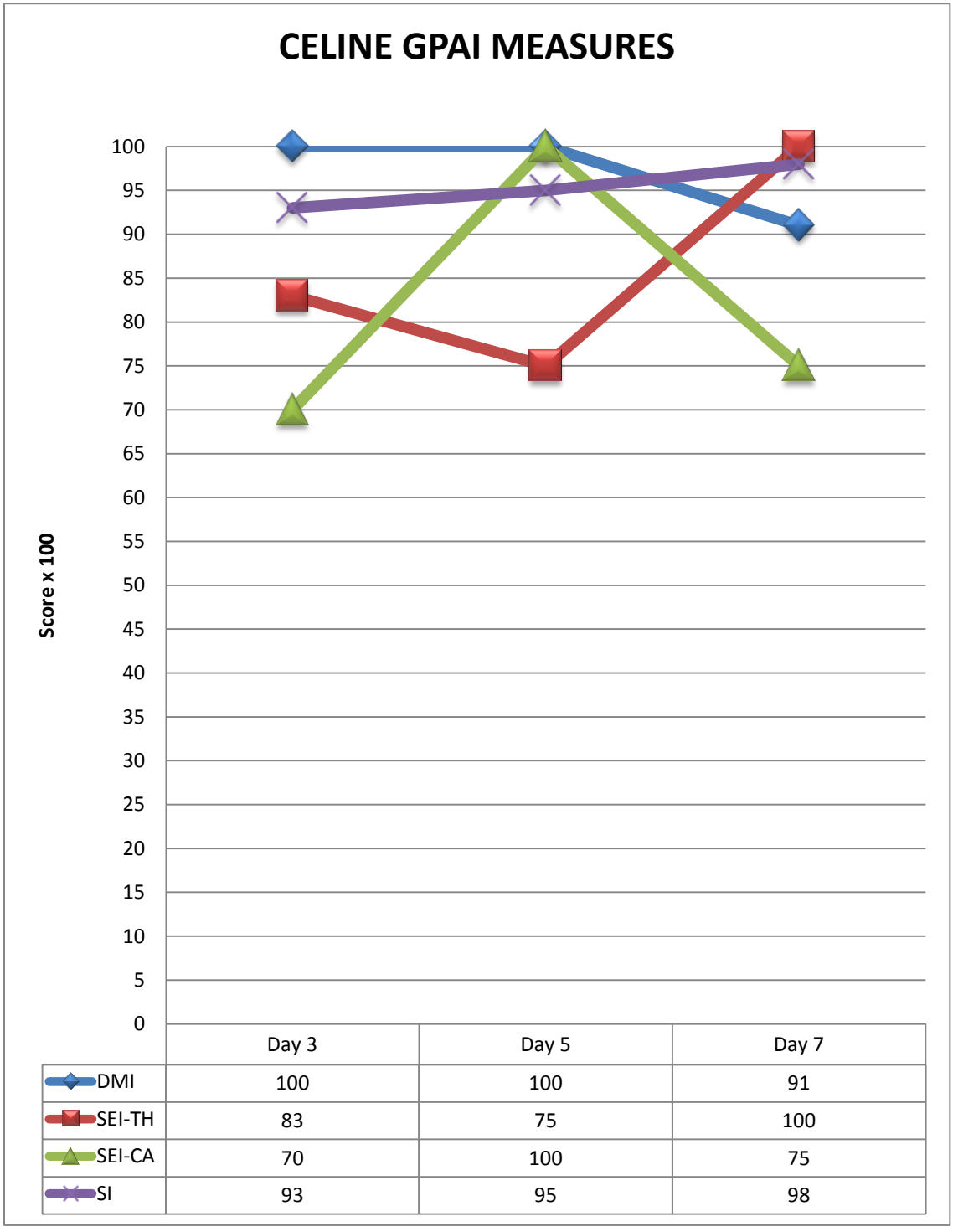
APPENDIX Y2

CHARLIE GAME INVOLVEMENT & GAME PERFORMANCE



APPENDIX Z1

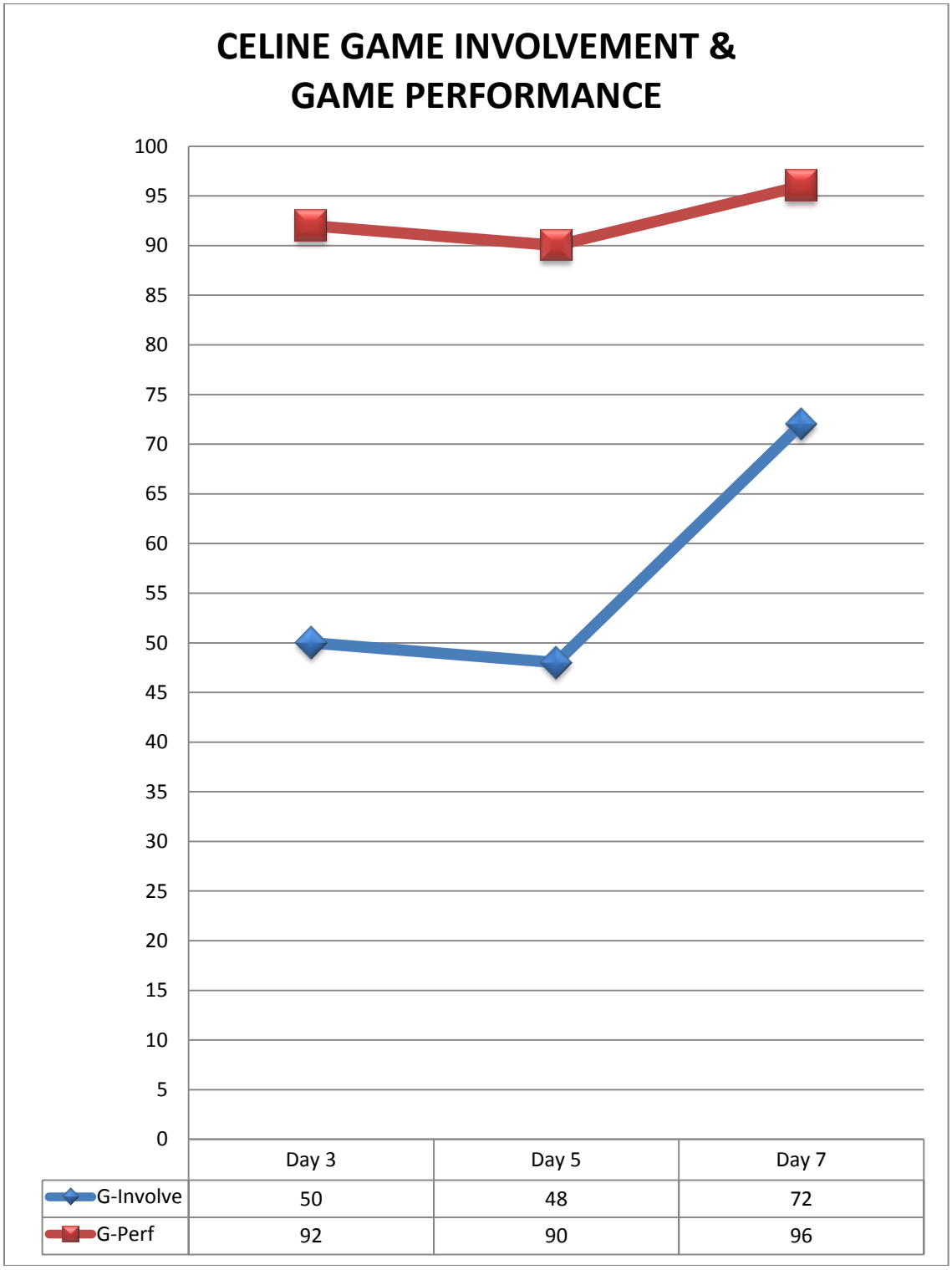
CELINE GPAI MEASURES



	Day 3	Day 5	Day 7
DMI	100	100	91
SEI-TH	83	75	100
SEI-CA	70	100	75
SI	93	95	98

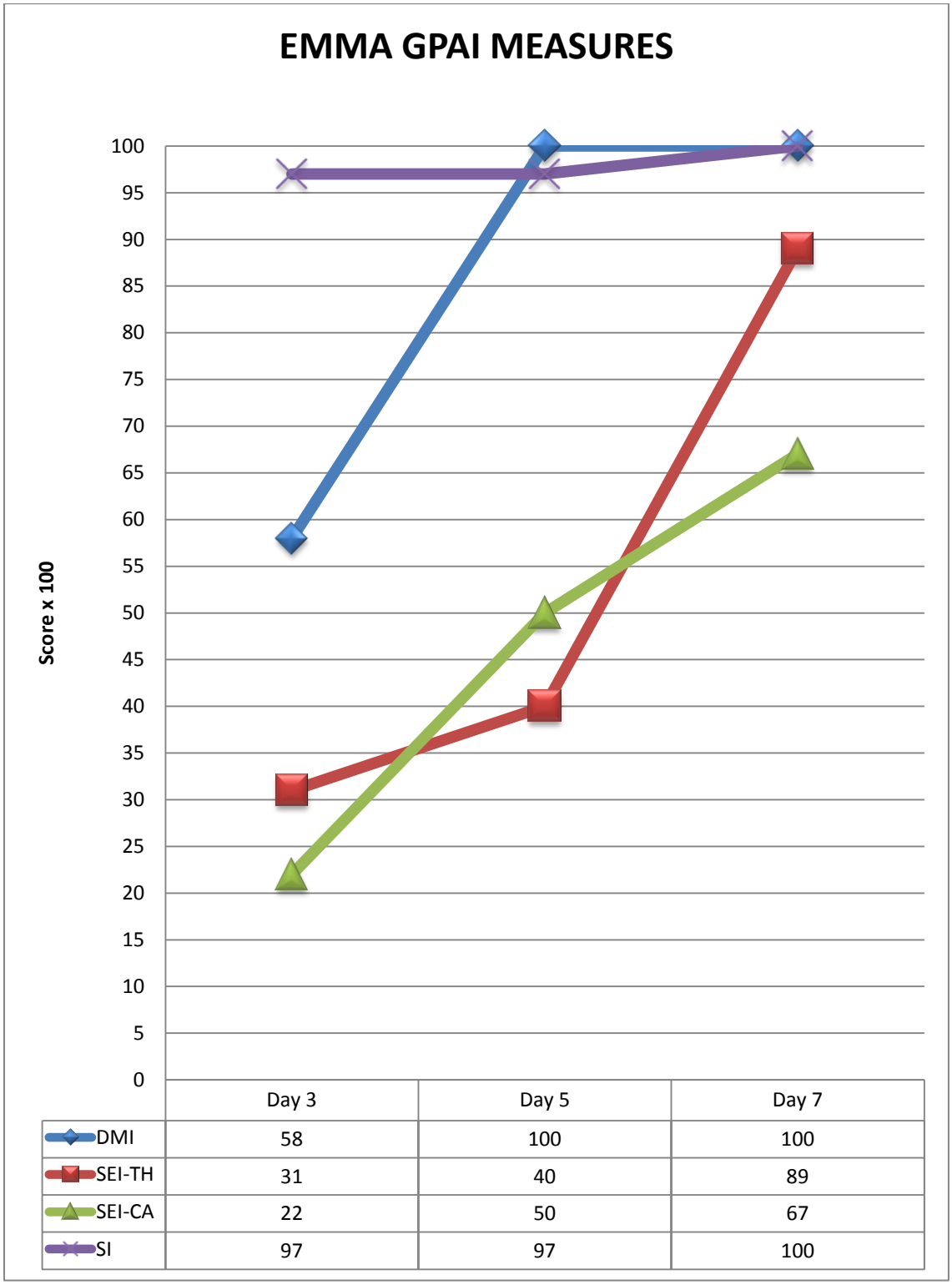
APPENDIX Z2

CELINE GAME INVOLVEMENT & GAME PERFORMANCE



APPENDIX AA1

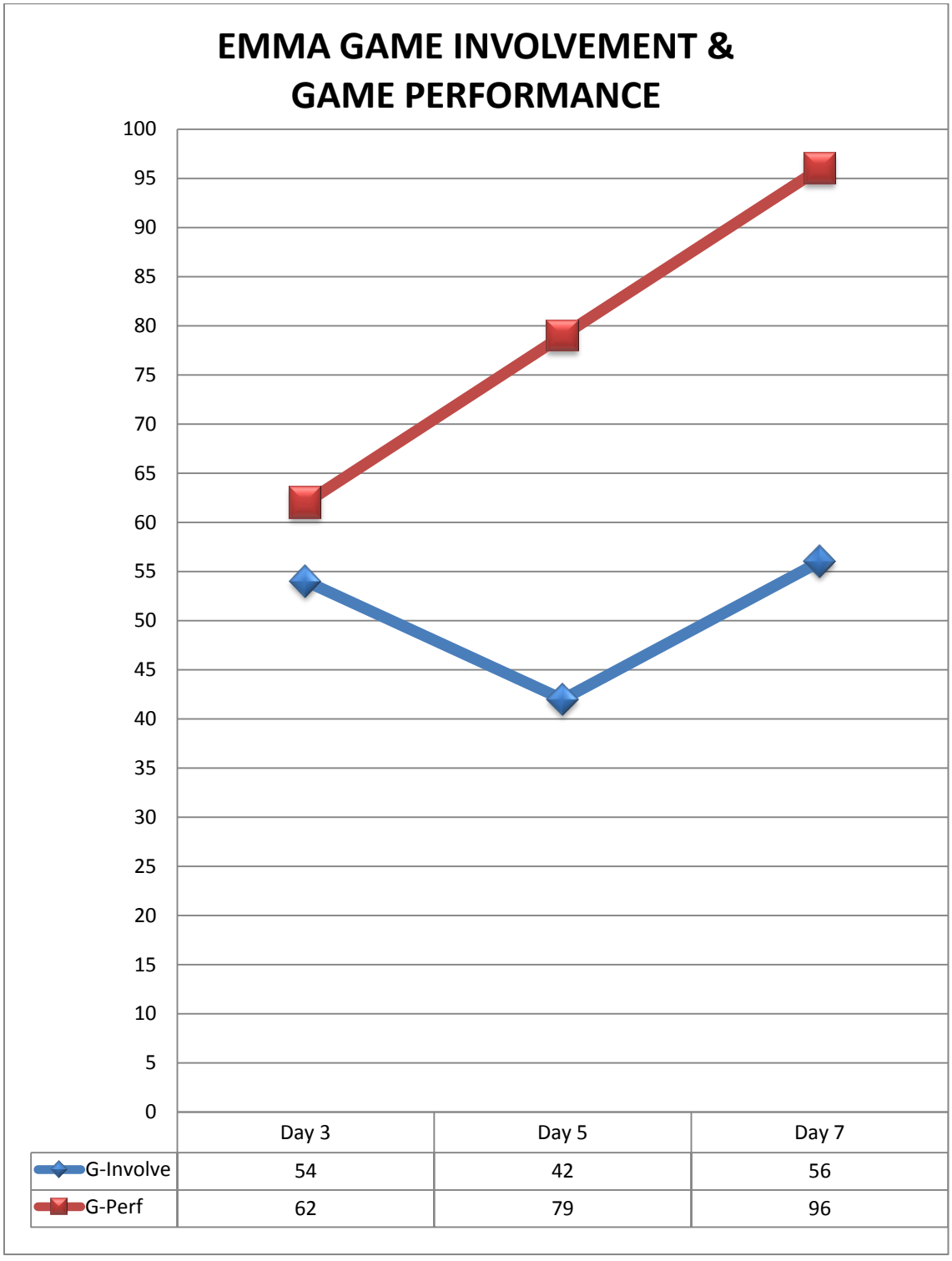
EMMA GPAI MEASURES



	Day 3	Day 5	Day 7
DMI	58	100	100
SEI-TH	31	40	89
SEI-CA	22	50	67
SI	97	97	100

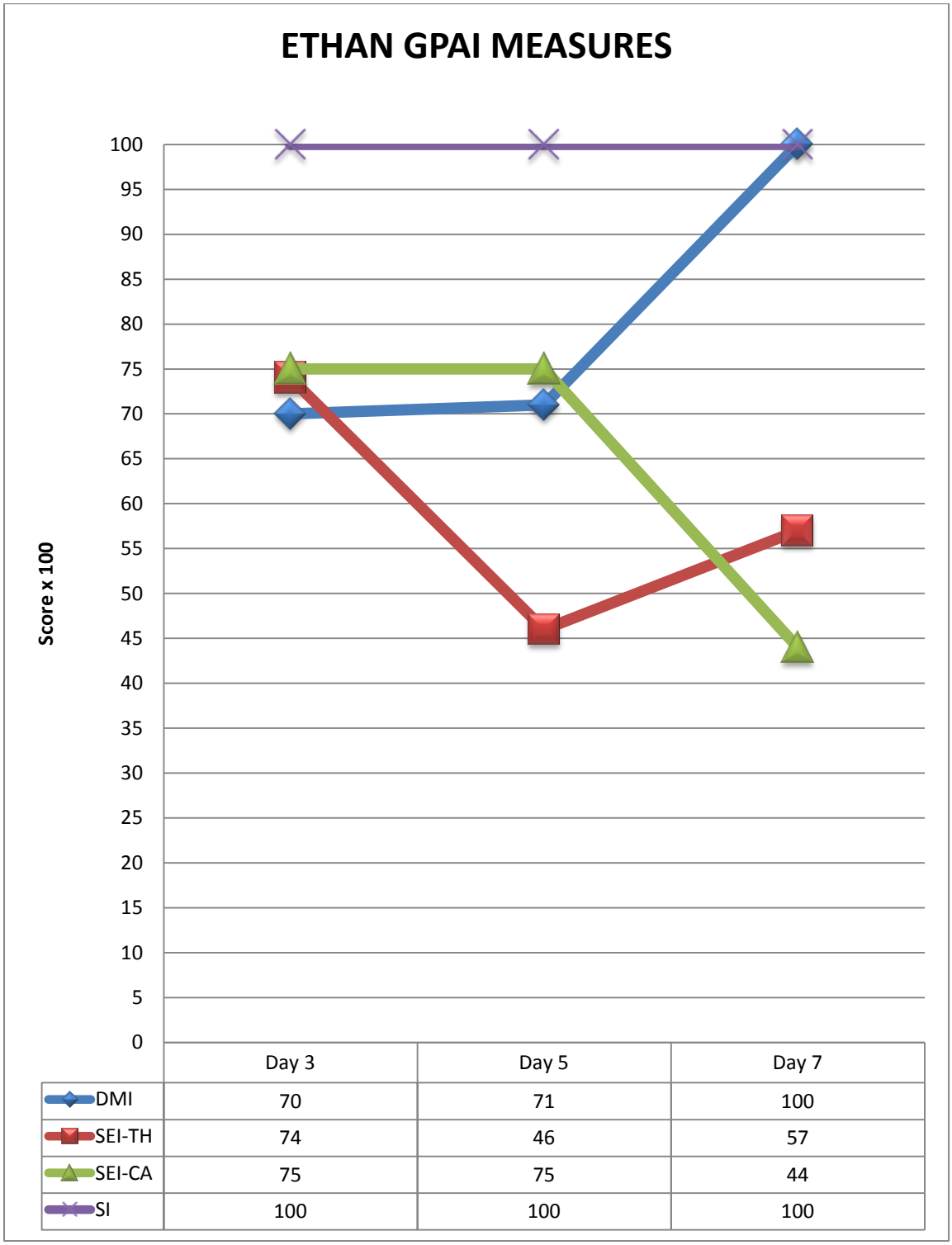
APPENDIX AA2

EMMA GAME INVOLVEMENT & GAME PERFORMANCE



APPENDIX BB1

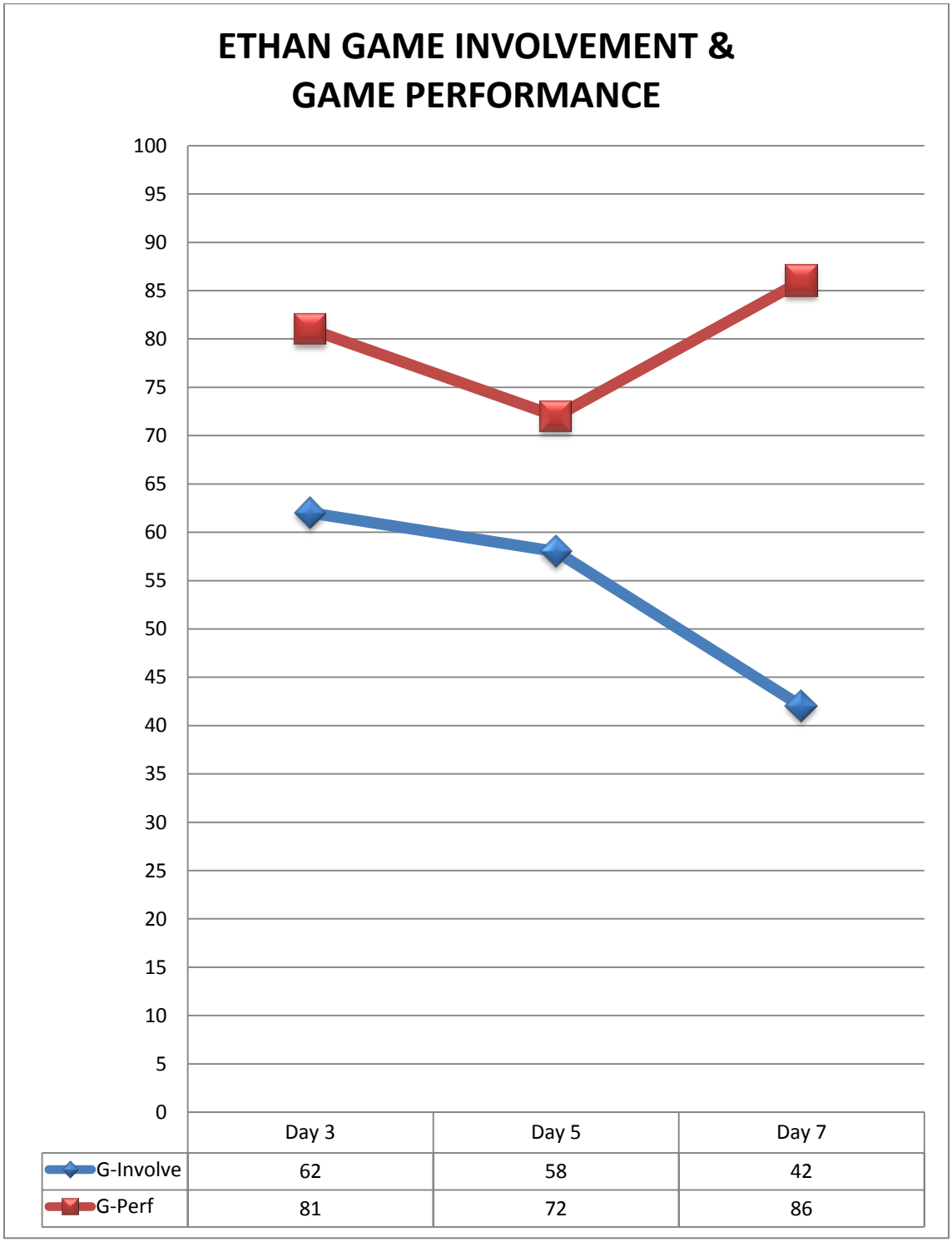
ETHAN GPAI MEASURES



	Day 3	Day 5	Day 7
DMI	70	71	100
SEI-TH	74	46	57
SEI-CA	75	75	44
SI	100	100	100

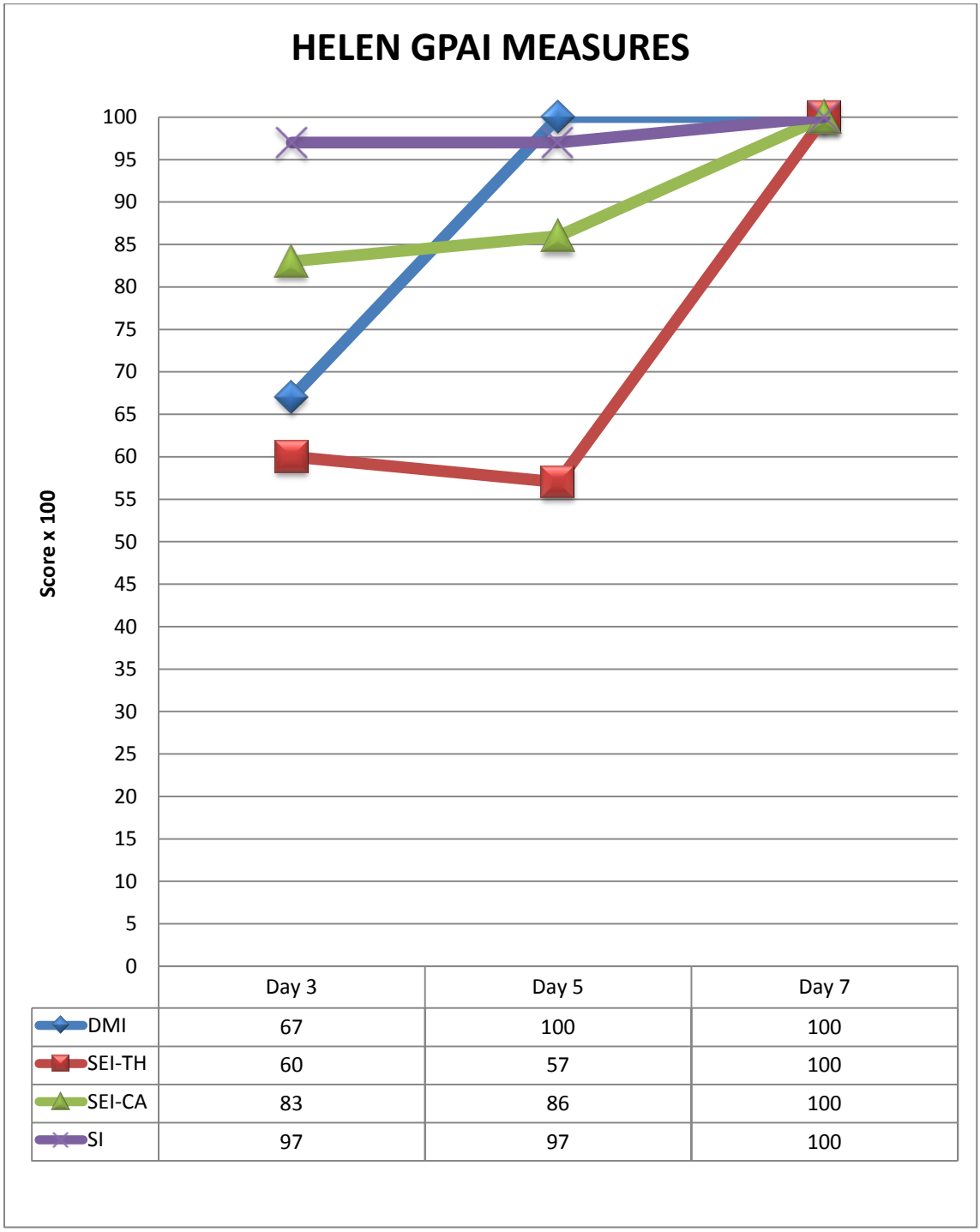
APPENDIX BB2

ETHAN GAME INVOLVEMENT & GAME PERFORMANCE



APPENDIX CC1

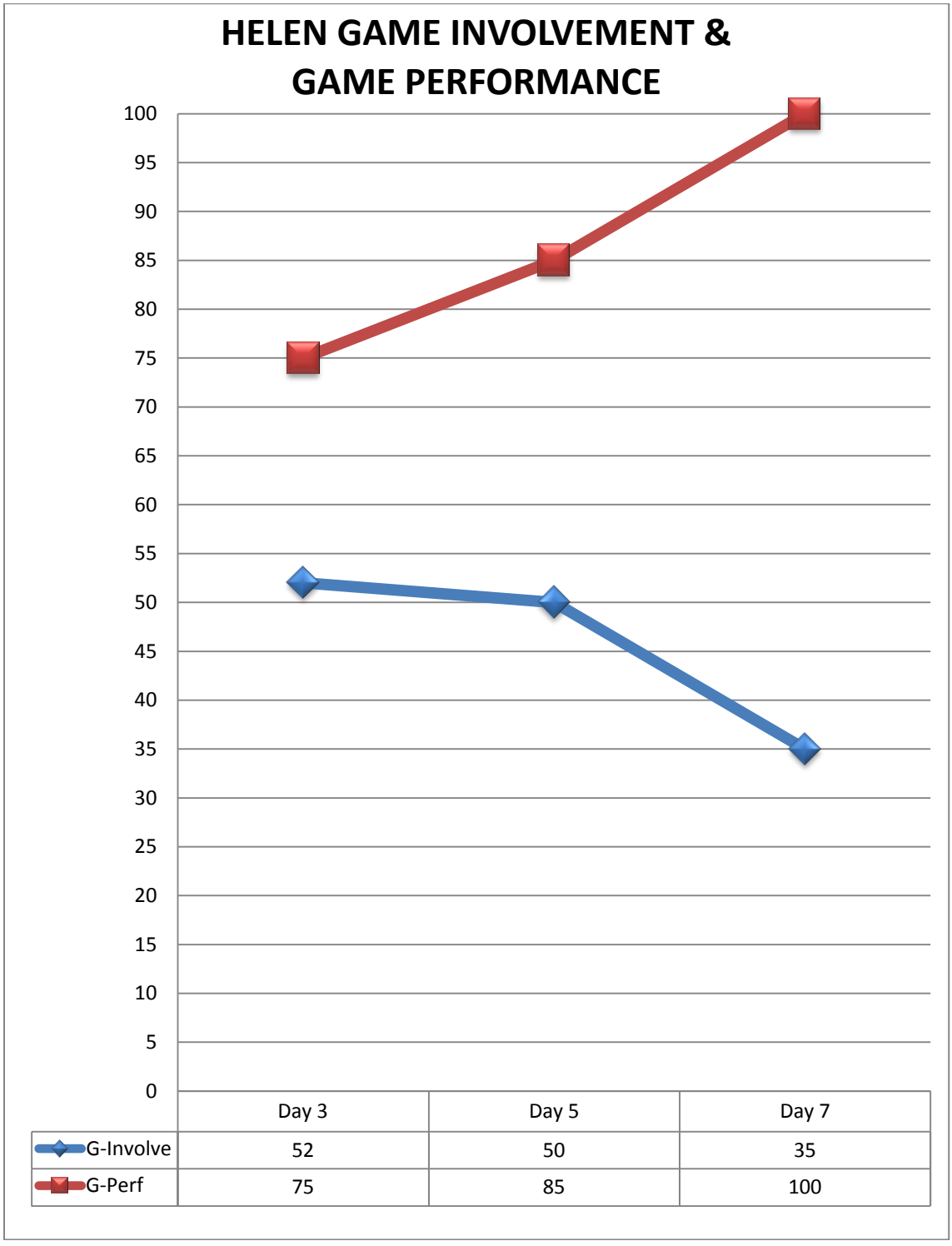
HELEN GPAI MEASURES



	Day 3	Day 5	Day 7
DMI	67	100	100
SEI-TH	60	57	100
SEI-CA	83	86	100
SI	97	97	100

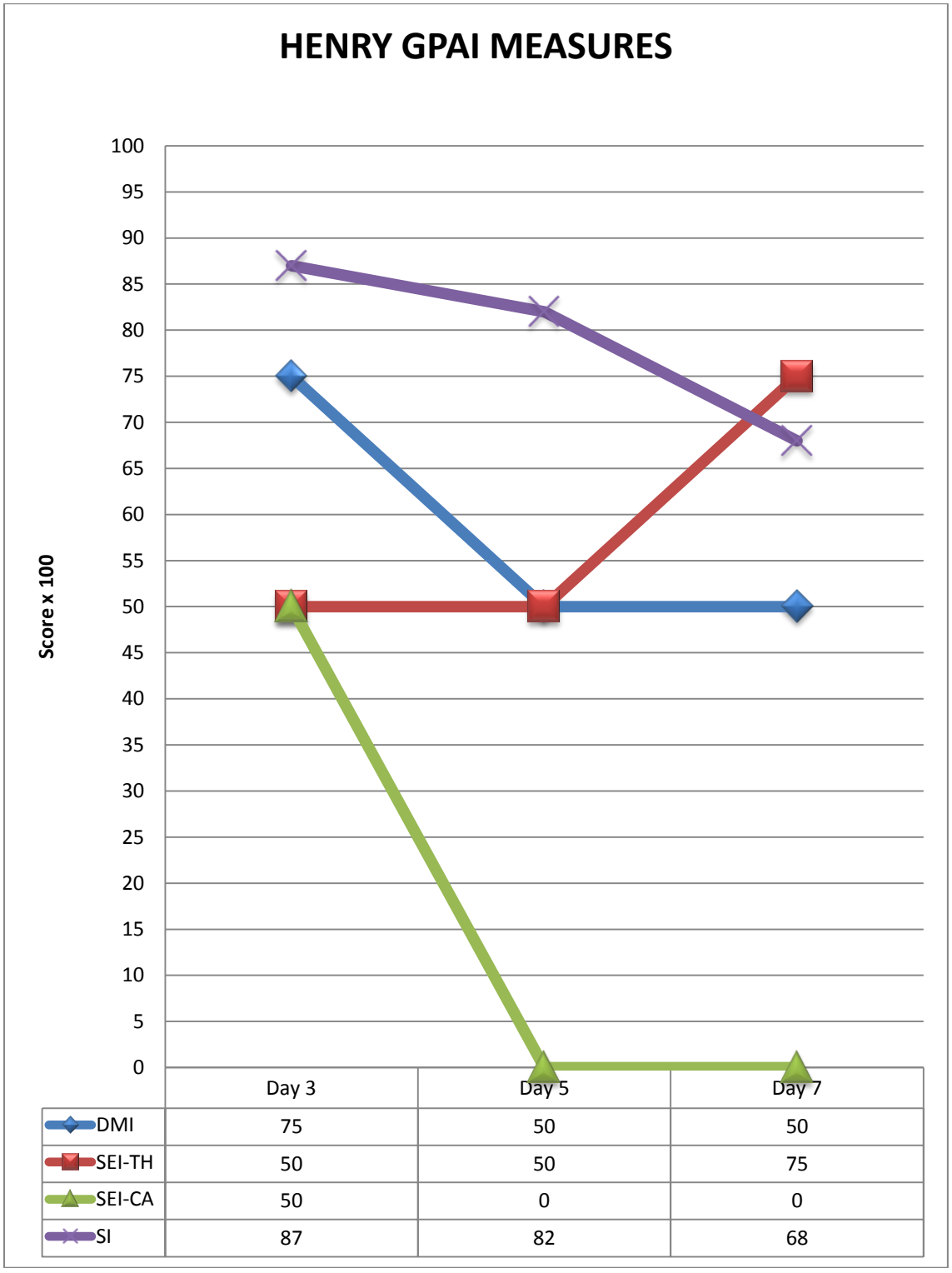
APPENDIX CC2

HELEN GAME INVOLVEMENT & GAME PERFORMANCE



APPENDIX DD1

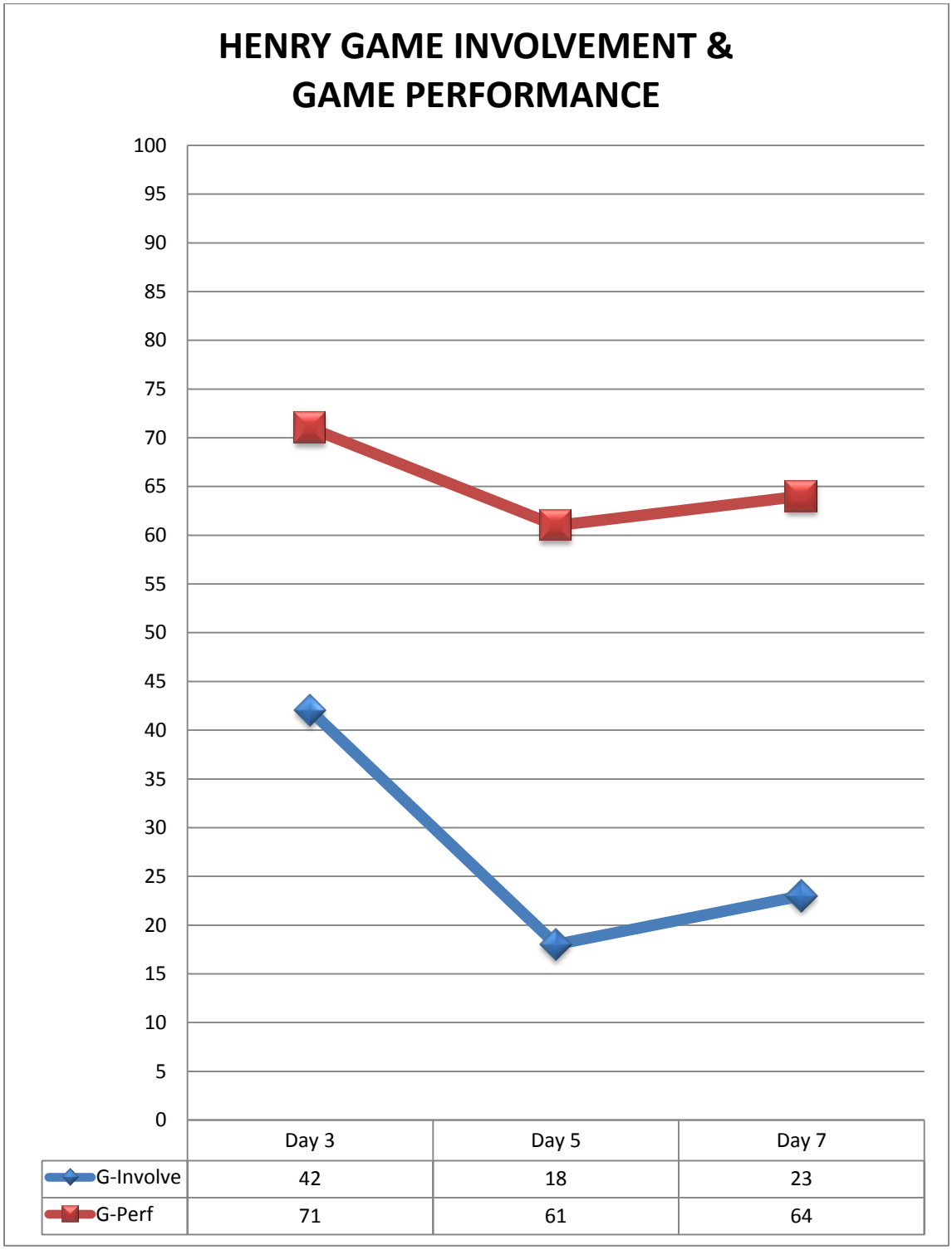
HENRY GPAI MEASURES



	Day 3	Day 5	Day 7
DMI	75	50	50
SEI-TH	50	50	75
SEI-CA	50	0	0
SI	87	82	68

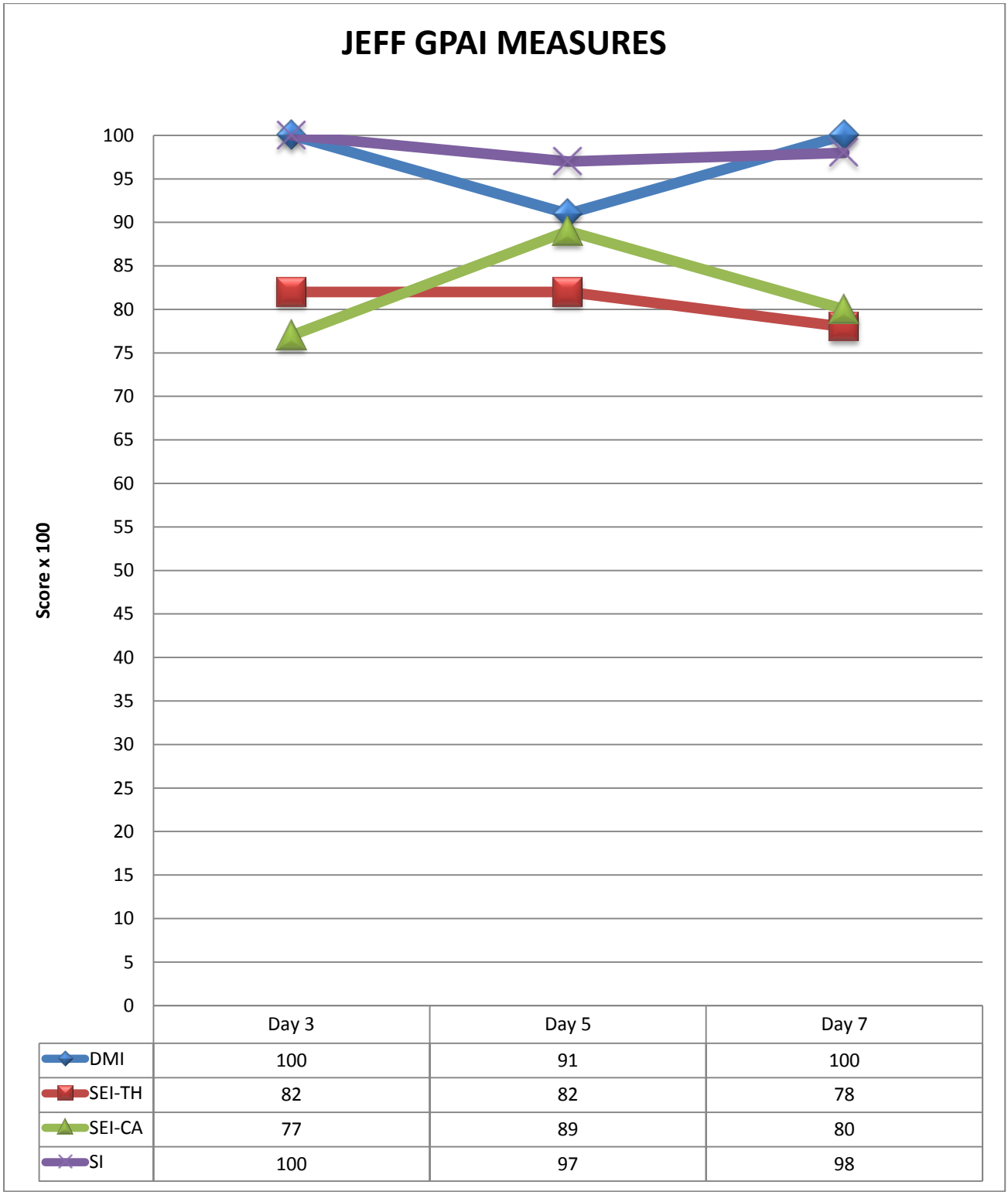
APPENDIX DD2

HENRY GAME INVOLVEMENT & GAME PERFORMANCE



APPENDIX EE1

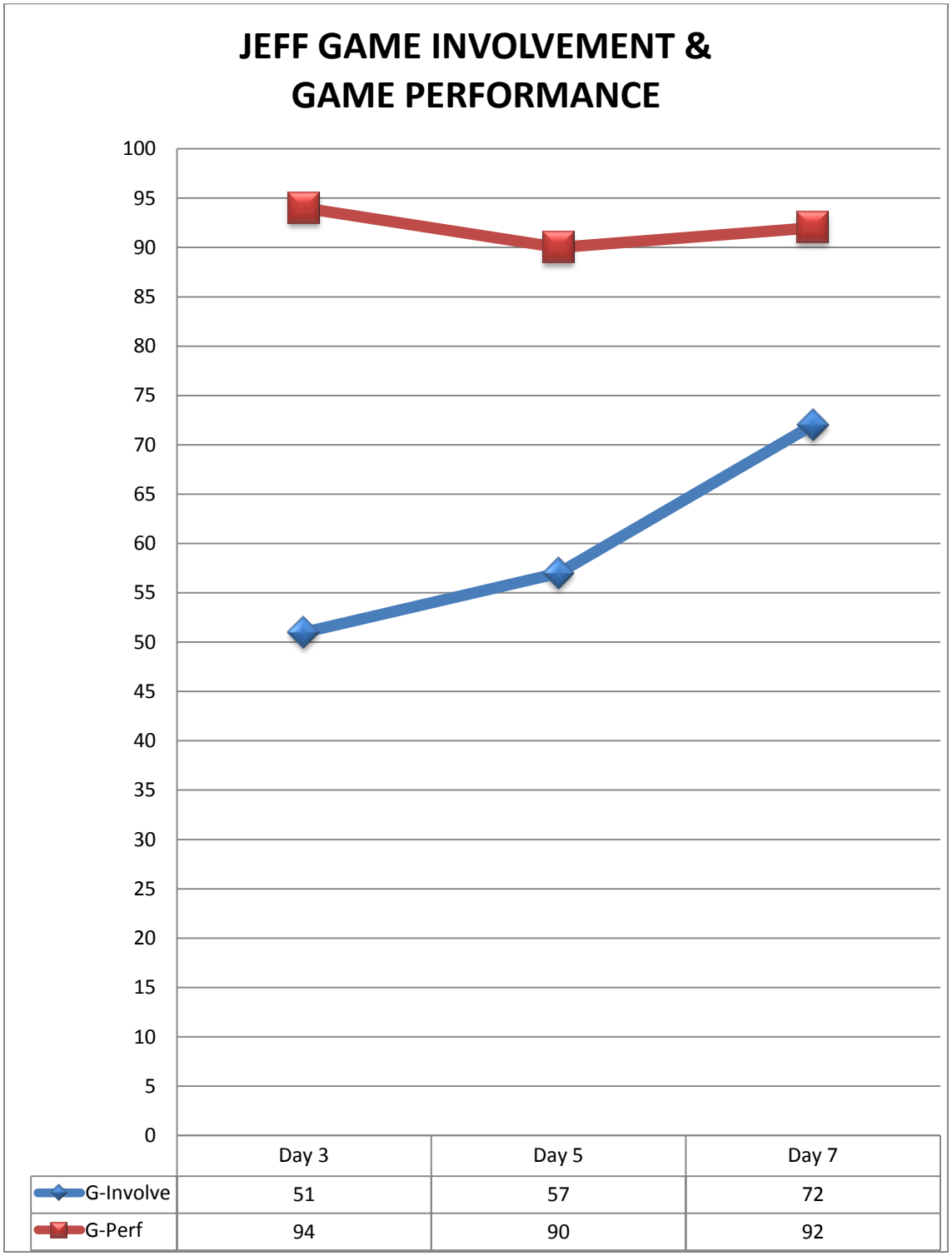
JEFF GPAI MEASURES



	Day 3	Day 5	Day 7
DMI	100	91	100
SEI-TH	82	82	78
SEI-CA	77	89	80
SI	100	97	98

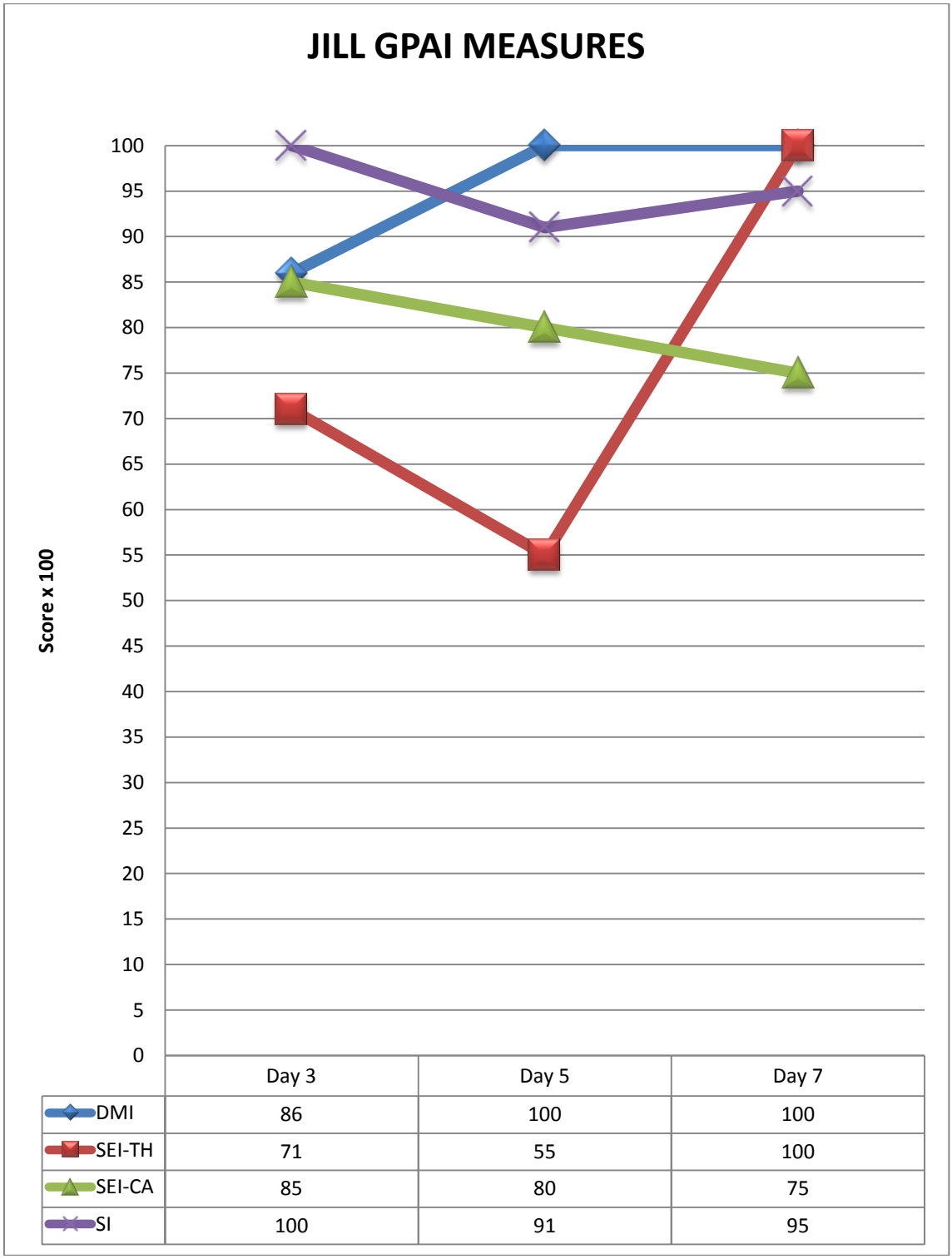
APPENDIX EE2

JEFF GAME INVOLVEMENT & GAME PERFORMANCE



APPENDIX FF1

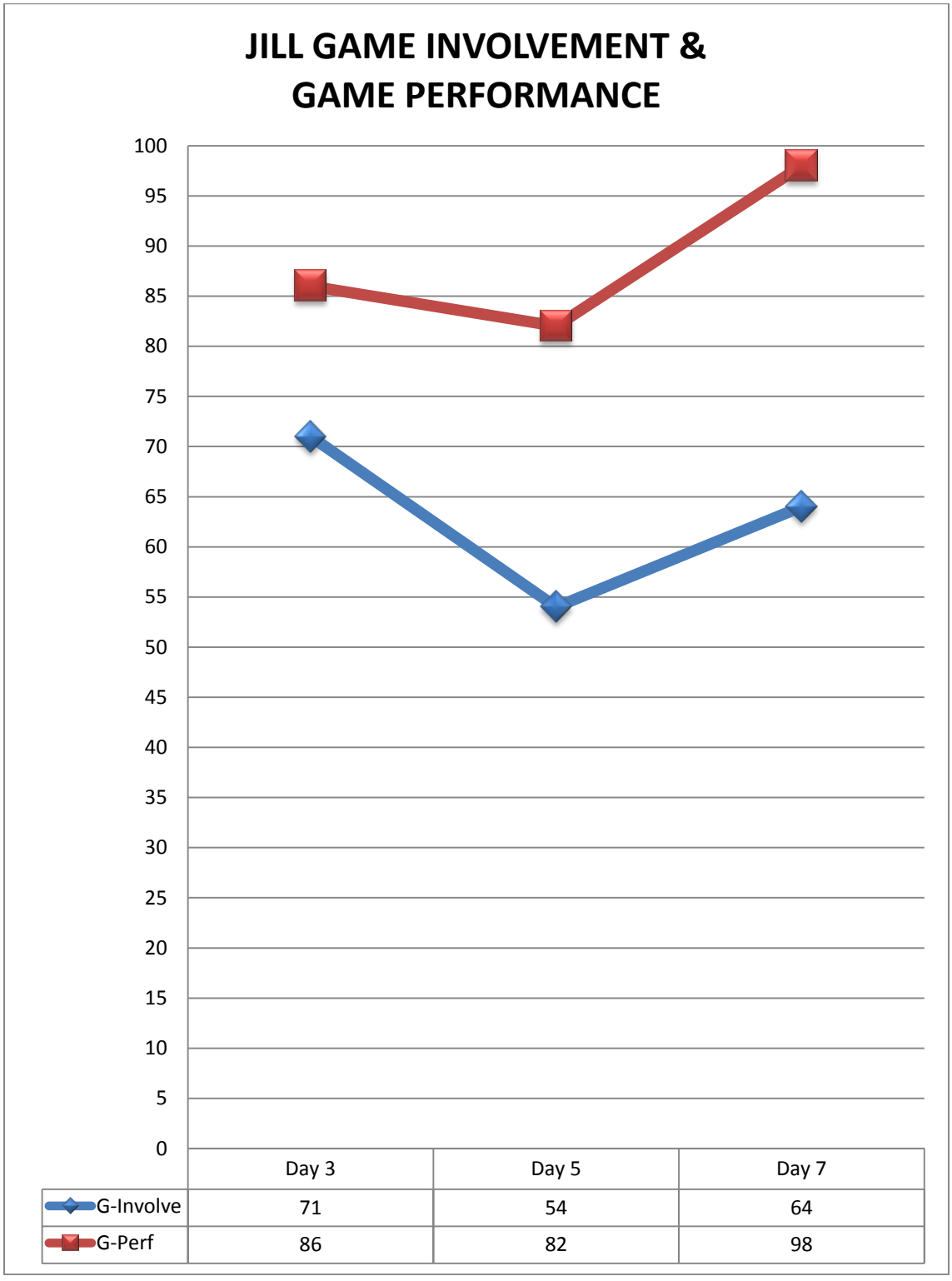
JILL GPAI MEASURES



	Day 3	Day 5	Day 7
DMI	86	100	100
SEI-TH	71	55	100
SEI-CA	85	80	75
SI	100	91	95

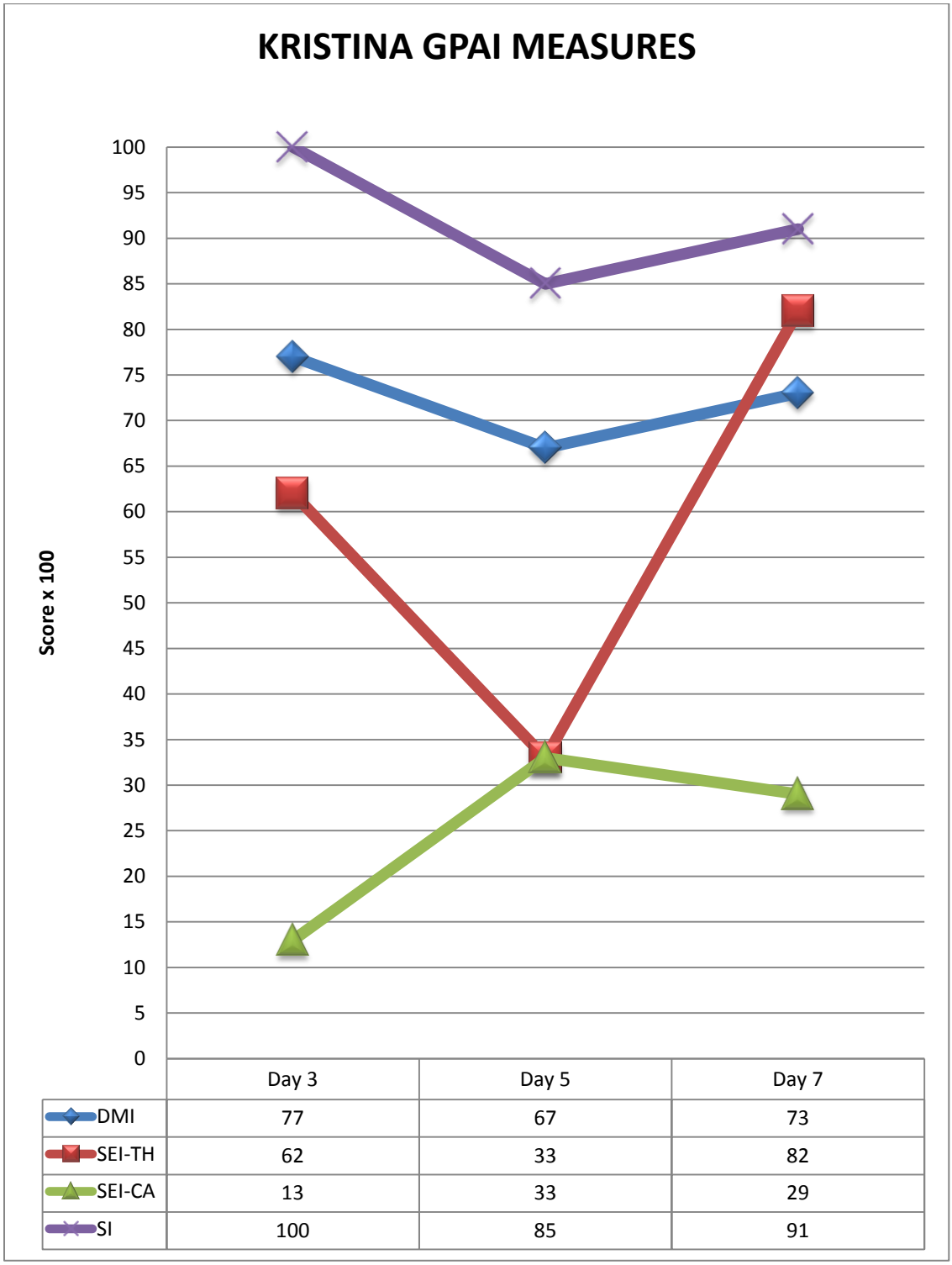
APPENDIX FF2

JILL GAME INVOLVEMENT & GAME PERFORMANCE



APPENDIX GG1

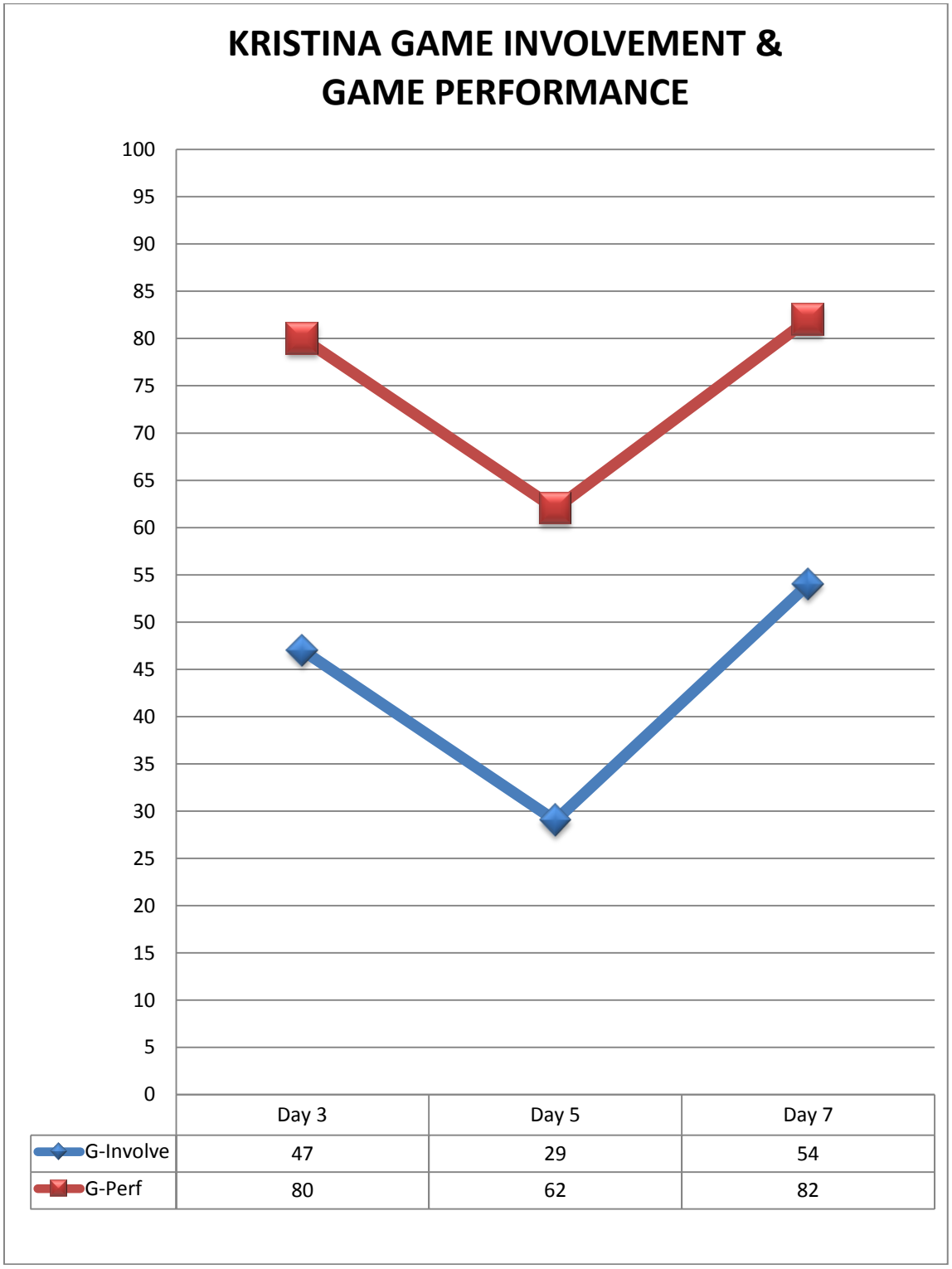
KRISTINA GPAI MEASURES



	Day 3	Day 5	Day 7
DMI	77	67	73
SEI-TH	62	33	82
SEI-CA	13	33	29
SI	100	85	91

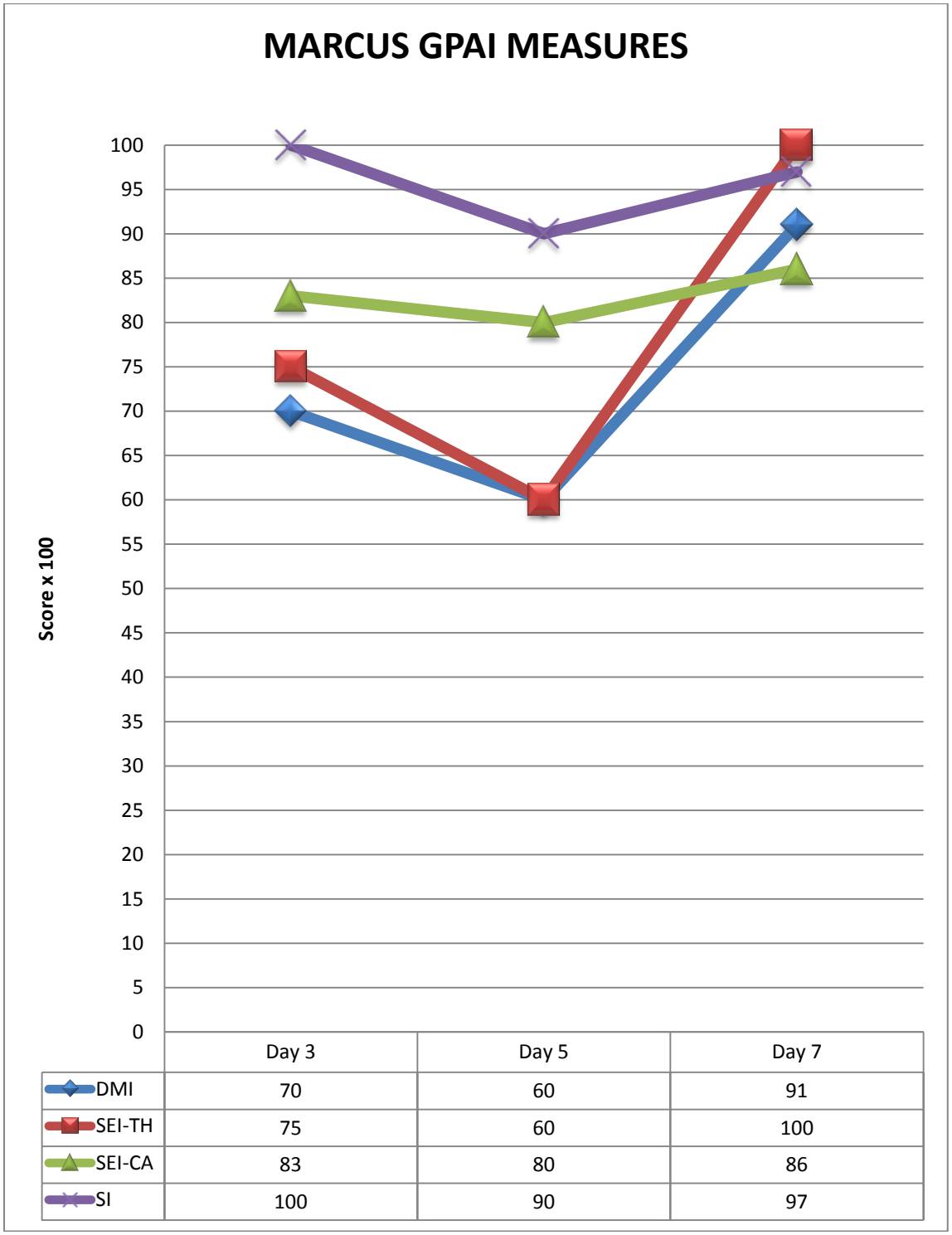
APPENDIX GG2

KRISTINA GAME INVOLVEMENT & GAME PERFORMANCE



APPENDIX HH1

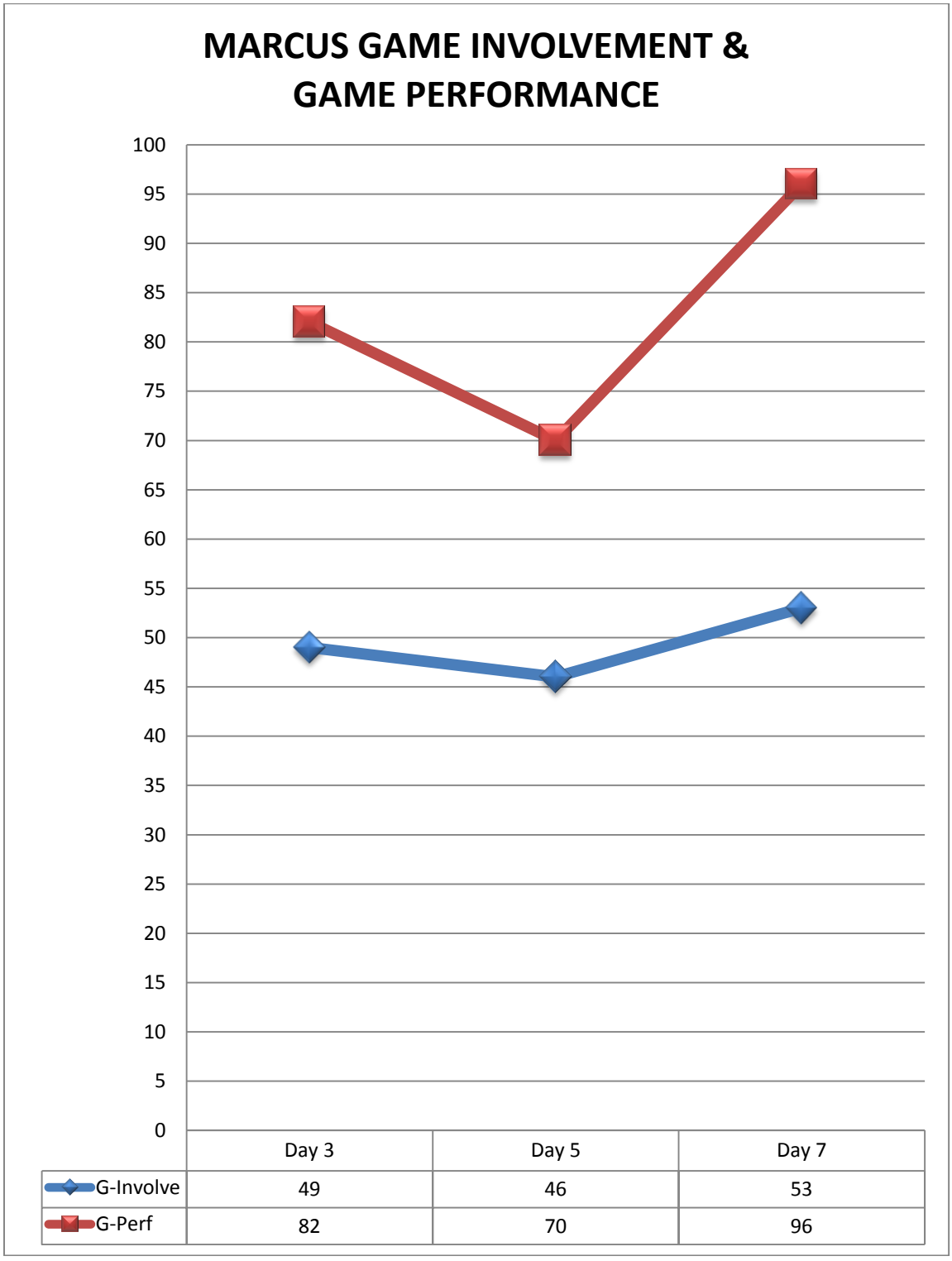
MARCUS GPAI MEASURES



	Day 3	Day 5	Day 7
DMI	70	60	91
SEI-TH	75	60	100
SEI-CA	83	80	86
SI	100	90	97

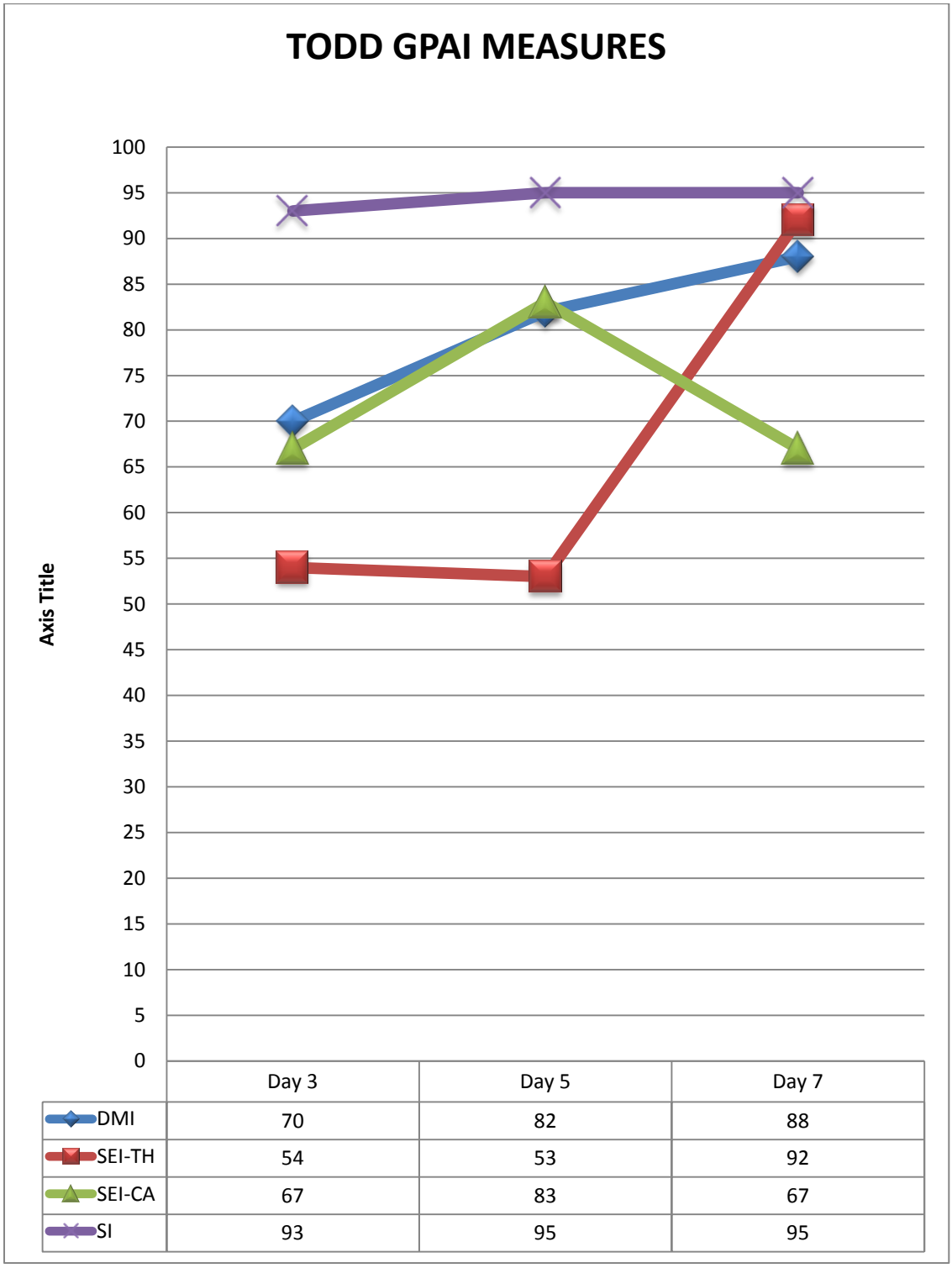
APPENDIX HH2

MARCUS GAME INVOLVEMENT & GAME PERFORMANCE



APPENDIX II1

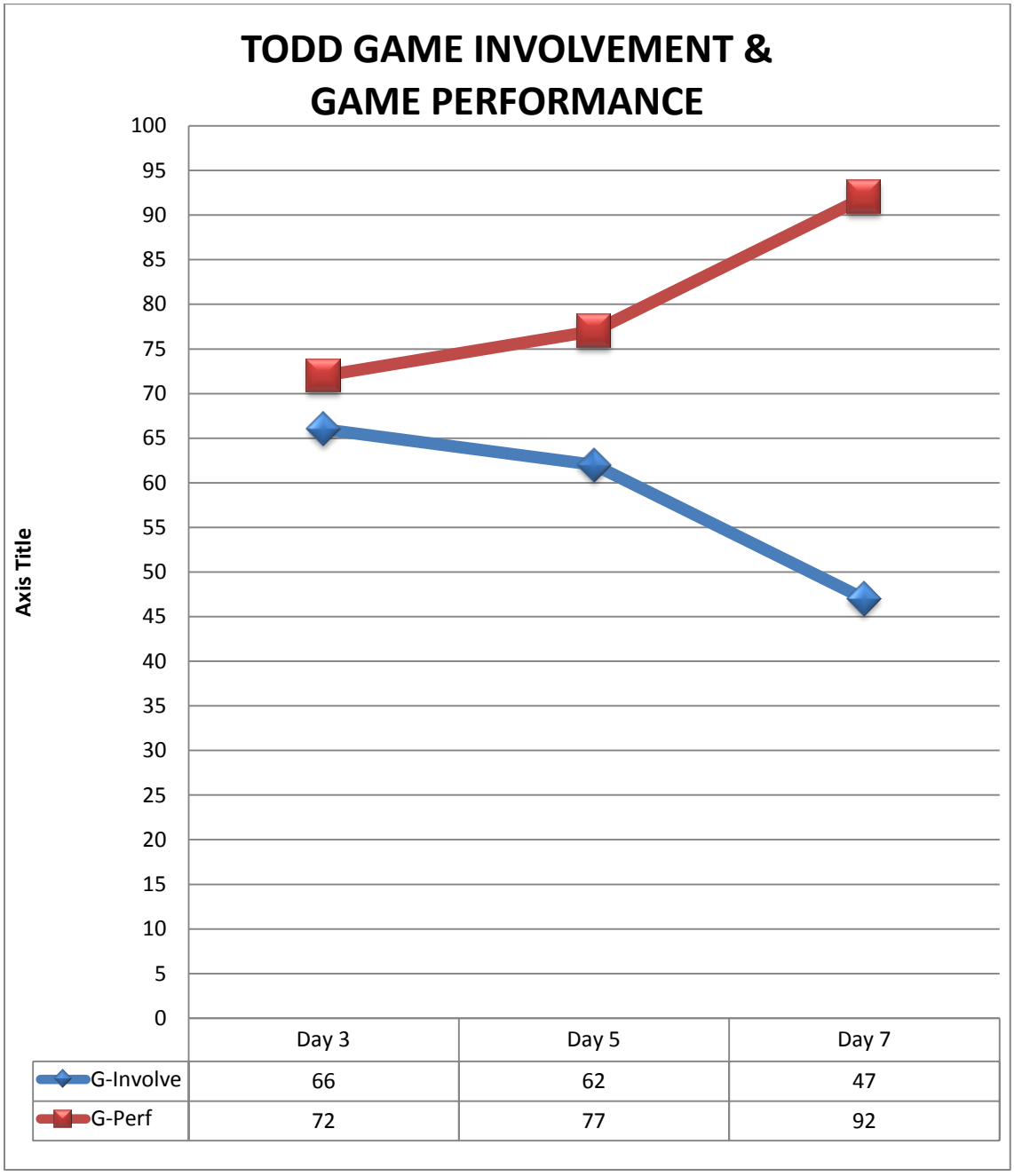
TODD GPAI MEASURES



	Day 3	Day 5	Day 7
DMI	70	82	88
SEI-TH	54	53	92
SEI-CA	67	83	67
SI	93	95	95

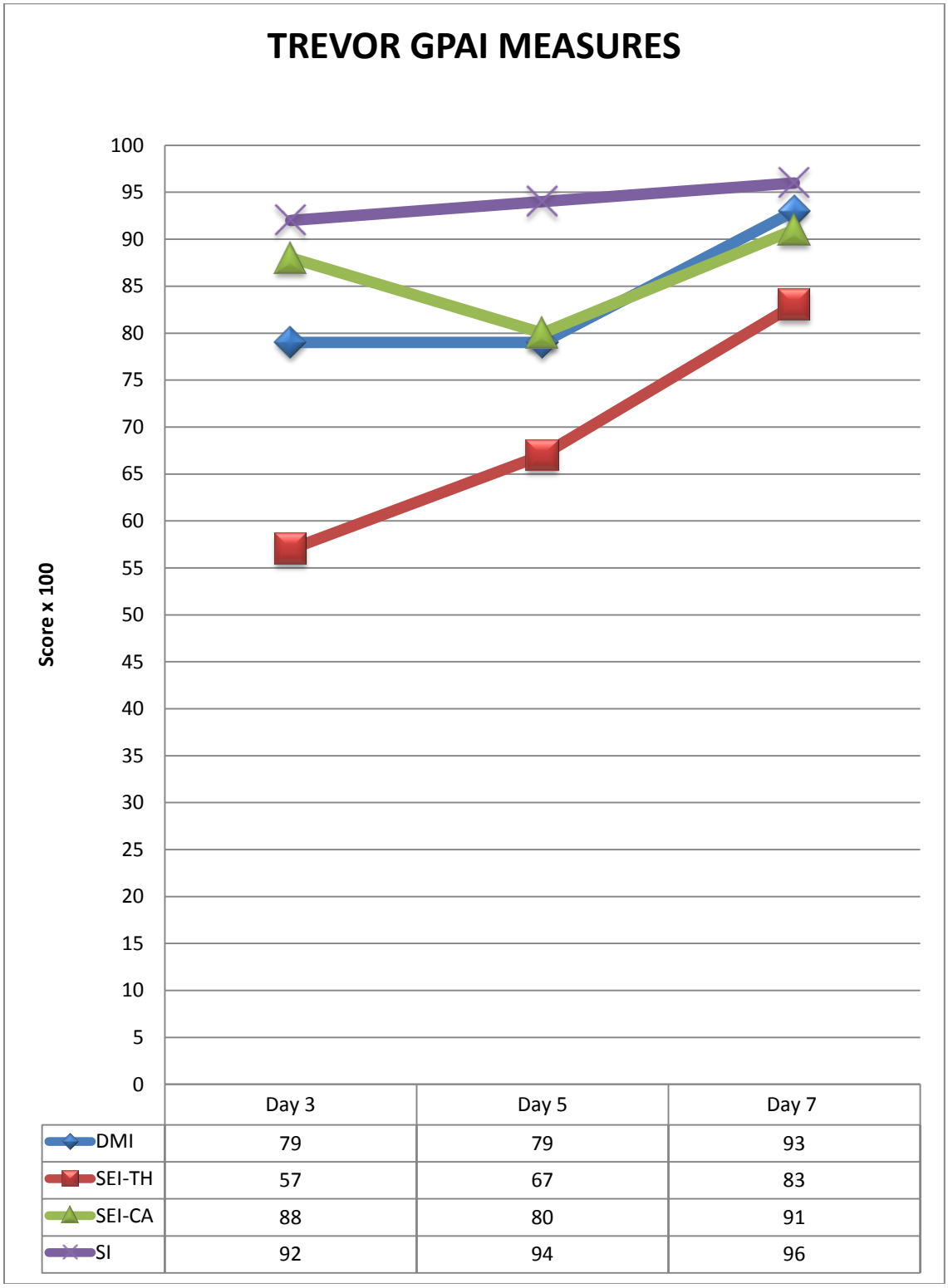
APPENDIX II2

TODD GAME INVOLVEMENT & GAME PERFORMANCE



APPENDIX JJ1

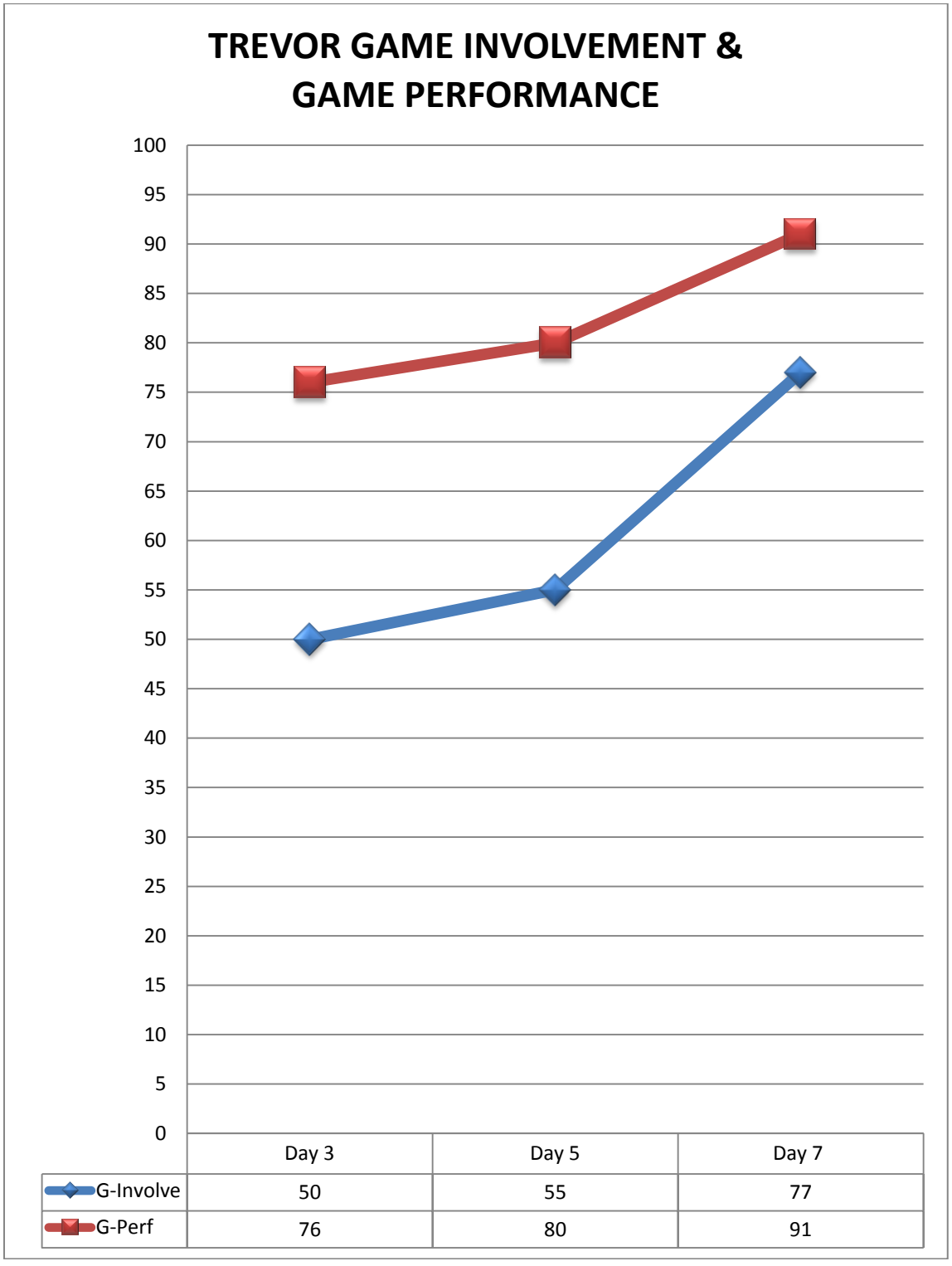
TREVOR GPAI MEASURES



	Day 3	Day 5	Day 7
DMI	79	79	93
SEI-TH	57	67	83
SEI-CA	88	80	91
SI	92	94	96

APPENDIX JJ2

TREVOR GAME INVOLVEMENT & GAME PERFORMANCE



APPENDIX KK

TGM GUIDEBOOK

The Tactical Games Model (TGM)

=

An Instructional Model

+

Constructivist Approach to Teaching and Learning Sport

Eric J. Carpenter
University of Massachusetts Amherst

This TGM Guidebook was developed to support inservice teacher faithful use of the Tactical Games Model (TGM) to design and teach sport in physical education.

TABLE OF CONTENTS:

All students deserve to have positive movement experiences (e.g., fitness, sport, dance, adventure) in physical education class. Teachers who choose to design and teach sport using the Tactical Games Model (TGM) will be: (a) making a shift toward best practice in teaching and learning and (b) taking 'The Road Less Traveled' (Zidon, 1991) for teaching sport in physical education.

The Tactical Games Model (TGM) is an INSTRUCTIONAL MODEL

Unlike using a teaching style (Mosston & Ashworth, 1994) and demonstrating effective teaching (Rink, 2003) during individual lessons, instructional models represent "blueprints" (Metzler, 2005) for designing and teaching comprehensive physical education units (e.g., sport, dance, cooperative/adventure, lifetime activities). In the recent edition of *Instructional Models for Physical Education,* Metzler introduced eight instructional models: (a) Direct Instruction Model, (b) Personalized System of Instruction (PSI), (c) Cooperative Learning, (d) Sport Education Model (SEM), (e) Peer Teaching, (f) Inquiry Teaching, (g) Tactical Games (TGM), and (h) Teaching for Personal and Social Responsibility (TPSR). There are several models (e.g., Tactical Games, Sport Education, & Direct Instruction) being used to design and teach sport units in physical education.

TGM stands out because it represents both an instructional model and a constructivist approach to teaching and learning sport. Teachers who select the Tactical Games Model (TGM) will focus on achieving the following outcomes (Griffin & Patton, 2005: Mitchell, Oslin, & Griffin, 2006):

- **improved student game involvement**
- **better student decision-making during game play**
- **improved skills and movements**
- **increased student motivation and enjoyment**
- **better overall games playing/game performance**

TGM is a CONSTRUCTIVIST APPROACH TO TEACHING AND LEARNING SPORT

Constructivism is a learning theory that focuses on a learner's individual and social construction of knowledge and the meaning the learner makes during this process (Hein, 1991). Lemlech (2002) describes a constructivist approach as: **"An approach that encourages students to structure personal understanding through an active learning experience"** (p. 20). Also, McCombs & Whisler (1997) offer the following view of constructivist learning:

> **Learning is a constructive process that occurs best when what is being learned is relevant and meaningful to the learner and when the learner is actively engaged in creating his or her own knowledge and understanding by connecting what is being learned with prior knowledge and experience (pg 10).**

The constructivist nature of TGM transforms the TGM sequence into a series of purposeful learning situations that allow students to:

- **<u>Experience</u> games playing (Game 1)**
- **<u>Discuss</u> their games playing experience (Q & A)**
- **<u>Practice</u> aspects of games playing (Situated Practice)**
- **<u>Show improvement</u> during a culminating games playing experience (Game 2)**

The daily sequence of learning situations scaffold the learning process to help students identify and solve 'tactical' problems occurring in games along with make real life connections during the physical education lesson. Mitchell, Oslin, and Griffin explained the rationale for the sequence of

learning situations: “In sum, the initial modified game sets the problem, the skill focus provides solutions to the problem, and the closing game applies the solutions to their game context” (2006, p. 541).

While completing the full sequence is ideal, there will be times where a teacher may need to modify the TGM lesson sequence due to time constraints. For example, a teacher may choose to incorporate more questions (Q & A) into various learning situations to adhere to a GAME – PRACTICE – GAME structure instead of holding a formal Q & A and/or a teacher might use a GAME – Q &A – PRACTICE format if students need more time to be successful during practice tasks/game-like situations.

Ultimately, the TGM lesson sequence offers a way for teachers to activate learners throughout a lesson. The sequence focuses on helping students: (a) build knowledge and (b) gain experience through games playing ties to the constructivist nature of TGM. Pedagogical implications for teacher application of constructivist approaches to teaching physical education (Dyson, Griffin, & Hastie, 2004) include:

- ✓ **teacher is a facilitator**
- ✓ **students are active learners**
- ✓ **students work in groups or modified games**
- ✓ **learning activities are interesting and challenging**
- ✓ **students are held accountable**

RATIONALE FOR USING TGM

TGM helps student Meet and Exceed NASPE Standards for Learning in Physical Education

Teachers who select the Tactical Games Model (TGM) will focus on achieving the following student outcomes: (a) improved student game involvement, (b) better student decision-making during game play, (c) improved skills and movements, (d) increased student motivation and enjoyment, and (e) better overall games playing/game performance (Griffin & Patton, 2005: Mitchell, Oslin, & Griffin, 2006). Each of the above outcomes supports student work toward meeting and exceeding NASPE Standards for Learning in Physical Education.

Types of Learning that should occur in Physical Education	Meeting NASPE Standards during a TGM Unit
Standard 1: Demonstrates competency in motor skills and movement patterns needed to perform a variety of physical activities.	✓ Ongoing focus on improved skill execution and movement during games playing
Standard 2: Demonstrates understanding of movement concepts, principles, strategies, and tactics as they apply to the learning and performance of physical activities.	✓ Ongoing focus on better decision-making and critical thinking during game-like situations
Standard 3: Participates regularly in physical activity.	✓ Large amount of time dedicated to learning through games playing each lesson
Standard 4: Achieves and maintains a health-enhancing level of physical fitness.	✓ Benefits of sport linked to health-related fitness components (e.g., cardiorespiratory endurance)
Standard 5: Exhibits responsible personal and social behavior that respects self and others in physical activity settings.	✓ Cooperative and competitive games playing allows for opportunities that support self-officiating/positive sporting behavior
Standard 6: Values physical activity for health, enjoyment, challenge, self-expression, and/or social interaction.	✓ Small-sided games increase involvement and help students achieve a level of success in order to recognize sport as a social avenue for physical education
Source: *Moving into the Future: National Standards for Physical Education* (2004, 2nd Edition) by National Association for Sport and Physical Education	

TGM Supports Quality Physical Education (QPE, NASPE 2004)

Quality Physical Education (QPE) is viewed as the ultimate goal for K-12 physical education (Darst & Pangrazi, 2006; Masurier & Corbin, 2006; Siedentop, 2007). The National Association for Sport and Physical Education (NASPE) communicates that: "A high-quality physical education program includes the following components: opportunity to learn, meaningful content, and appropriate instruction." (2004, p. 5). Faithful implementation of the Tactical Games Model (TGM) aims to: (a) maximize student game involvement through small-sided games (opportunity to learn), (b) connect skills, movement, and decision-making to games playing (meaningful content), and (c) combines theory, practice, and research to guide instruction (appropriate instruction).

Appropriate Instruction in QPE	**Goals & Characteristics that Shape TGM Instruction**
Full inclusion of all students	✓ Heterogeneous teams and global focus that all students improve their games playing
Maximum practice opportunities for class activities	✓ Practice built into both games playing and situated (game-like) practice
Well-designed lessons that facilitate student learning	✓ Sequence of learning situations helps students problem solve ways to improve games playing
Out of school assignments that support learning and practice	✓ Belief that students should know how to set up and play sport games outside of physical education class (e.g., family picnic)
No physical activity for punishment	✓ No physical activity for punishment!! ✓ Game play is viewed as an important way to help students enjoy sport and games
Uses regular assessment to monitor and reinforce student learning	✓ GPAI focuses on authentic assessment of skill execution, movement (psychomotor) along with decision-making (cognitive)
Source: *Moving into the Future: National Standards for Physical Education* (2004, 2nd Edition) by National Association for Sport and Physical Education	

TGM Reflects Best Practice in Teaching and Learning

Physical education continues to make advances in both instruction and assessment. Zemelman, Daniels, and Hyde (1998) explain that "best practice" refers to: "serious, thoughtful, informed, responsible, state-of-the-art teaching" (p. viii). As part of their work in education, Zemelman, Daniels, and Hyde identified common themes within expert recommendations for best practice in the fields of Reading, Mathematics, Science, Social Studies, Visual Arts, Music, Dance, and Theater. Based on these content specific recommendations, they devised broad recommendations for what teachers and schools *should do LESS of* … and *do MORE of* … to maximize learning (Zemelman, Daniels, & Hyde, 1998).

Teachers should do LESS of …	***Characteristics of Using TGM***
LESS whole-class, teacher-directed instruction (e.g., lecturing)	**Constructivist approach** that emphasizes individual and team problem solving
LESS student passivity: sitting, listening, receiving, and absorbing information	Students are **involved in or pulled into question and answer sessions** that identify individual or team's needs for improvement
LESS attempts by teachers to thinly "cover" large amounts of materials in every subject area	**Games Classification System** allows students to transfer knowledge about common tactical problems across sports in same games category
Teachers should do MORE of …	***Characteristics of Using TGM***
MORE emphasis on higher-order thinking: learning a field's key concepts and principles	**TGM encourages student critical thinking** about selection of skills, movements, and decisions to be made during game situations
MORE cooperative, collaborative activity: developing the classroom as an interdependent community	**Cooperative play, teamwork, and good sporting behavior** are stressed as important aspects of games playing
MORE reliance on teachers' descriptive evaluations of student growth, including observations/anecdotal records, conference notes, and performance assessment rubrics	TGM focuses on **authentic assessment through use of the Game Performance Assessment Instrument (GPAI)**
Source: *Best Practice: New Standards for Teaching and Learning in America's Schools* (1998, 2nd ed.) by Zemelman, Daniels, & Hyde	

Respectively, some teachers being introduced to TGM have requested more evidence to support their shift in their practice (Butler, 1996).

FINDINGS FROM TGM STUDIES

At present time the Tactical Games Model (TGM) literature includes cases of positive teacher implementation of TGM and outlines empirical findings for game performance measures (e.g., skill execution, decision-making). Positive teacher reports describe TGM as a way to: (a) increase student participation in physical education sport units and (b) improve overall games playing (Berkowitz, 1996; Mitchell, Griffin, & Oslin, 1997). The following paragraphs offer a summary of important findings from research studies.

Teacher Implementation of TGM

Action research studies focus primarily on preservice (Gubacs, 2000) and inservice teacher experiences learning about TGM implementation (Almond, 1986; Butler, 1996). For instance, findings from TGM action research studies include: (a) teachers who chose to use TGM became more reflective of their teaching, students, and games (Almond, 1986; Butler, 1996; Gubacs, 2000), (b) teachers' perceived positive student outcomes during a TGM unit (Butler, 1996), and (c) teachers provided suggestions for peers and other teachers willing to try TGM (Butler, 1996).

A majority of the studies cited in the TGM literature compared changes in student skill execution and decision-making during tactical and technical skill-based sport units. Hastie (2003) describes the technical skill-based approach using the following characteristics: (a) teacher explanation, (b) teacher demonstrations, (c) teacher led drills focusing on basic skills, and (d) full game play. Findings from these early comparison 'versus' studies show that both approaches were able to help students develop and improve skills as well as support decision-making.

Student Outcomes

While most studies showed that students were improving skill and making decisions in both technical and tactical groups, questions exist in regards to how the tactical sport units were implemented during some of the early comparison studies (Oslin & Mitchell, 2006). Also, it has been hypothesized that students in a technical group improved their decision-making during games playing experiences. Overall, findings from comparison studies are considered valuable and the important tactical group findings are presented in the following paragraphs.

Outcomes associated with experiencing a TGM sport unit included: (a) increased game involvement (Mitchell, Oslin, & Griffin, 1995; Allison & Thorpe, 1997), (b) improved skill execution (Turner and Martinek, 1999), (c) better decision-making (Turner, 1996; Turner and Martinek 1999), (d) incorporated strategy (Tjeerdsma, Rink, & Graham, 1996), (e) reported higher enjoyment (Graham, Ellis, Williams, Kwak, & Werner, 1996; Turner, 1996), and (f) increased tactical knowledge (Mitchell, Griffin, & Oslin, 1997) during TGM sport units. These findings were from investigations of student performance during invasion game and net units.

Teacher goals for student improvement and learning will determine which approach will best achieve these goals. Teachers seeking ways to go beyond skill execution and take decision-making to the next level should consider the Tactical Games Model (TGM). Ultimately, TGM is viewed as a better way to maximize student: (a) involvement, (b) thinking and strategizing, (c) off-the-ball movement, (d) enjoyment, and (e) overall games playing during a sport unit.

FAITHFUL IMPLEMENTATION OF TGM

General recommendations for TGM implementation include (Mitchell, Oslin, & Griffin, 2006):

1. **examine your core beliefs about sport and physical education**
2. **realize that change in teacher routines also means change in student routines**
3. **start out with your favorite sport**
4. **continue to think game-like from start to finish of lessons and unit**
5. **practice using the game-question-practice-game sequence progression**
6. **draft a sport unit**
7. **find support among peers because TGM is difficult**

Each instructional model has unique characteristics and themes that shape how the teacher presents subject matter. The following themes are central to the TGM philosophy:

- Sport and games are important.
    - Games can be modified and conditioned.
- Knowledge about tactical problems can be transferred between sports in the same games category (e.g., invasion games).
    - Authentic assessment should be used to assess changes in game performance.

Original 8-Day Block Plan for 5TH Grade TGM Ultimate Frisbee (Ultimate)

	DAY 1	DAY 2	DAY 3	DAY 4	DAY 5	DAY 6	DAY 7	DAY 8
Notes	Teams/ Expectations	Brief Intro & Review Expectations						
Tactical Problem	Maintaining Possession	Maintaining Possession + Add Creating & Using Space	Maintaining Possession & + Creating & Using Space + Add Attacking the Endzone	Maintaining Possession & + Creating & Using Space + Attacking the Endzone	**Maintaining Possession *by using a variety of throws on offense*** + Add Person to Person defense	Person to Person Defense	Zone Defense	All OFFENSIVE & DEFENSIVE TACTICAL PROBLEMS
GAME 1	4 vs 4 possession game NO ENDZONES	4 vs 4 possession game NO ENDZONES	2 vs 2 half court games w/ ENDZONES	4 vs 4 game w/ ENDZONES	4 vs 4 game w/ ENDZONES	4 vs 4 game w/ ENDZONES	4 vs 4 game w/ ENDZONES	4 vs 4 game w/ ENDZONES
Planned Questions	How many points did your team get during Game 1? Why did you team score points or not score points? Where is the best location to pass so your teammate can catch the Frisbee? Did you make any changes during the game to try to get more points?	How is your team doing at maintaining possession? What are the best ways to throw and catch the Frisbee? What should your teammates do if you have the Frisbee?	What was working or not working during the half court games? Tell me about the decisions you are making when you have the Frisbee and when you do not have the Frisbee? What does your team need to focus on during today's practice?	What was your team strategy to score a touchdown? What do you think about when you have the Frisbee? What do you think about when you do not have the Frisbee?	What should we add to the game playing and practice to make the game more complex/challenging ? Where did you move while on person to person defense?	How is the person to person defense working? What are some ways that you can improve your team's defense?	No Q & A (Focus Groups) Design your own practice	No Q & A (Focus Groups) Design your own practice
Practice Task	Backhand throw & Pass & move w/ teammates	3 vs 1 in grid	Pass, move & throw to target	Short & Long passes	Forehand throw Demo's & Practice * *ways to throw*	2 vs 2 half court Ultimate		
GAME 2	No Game 2 due to extra time for organization	4 vs 4 possession game	4 vs 4 game w/ ENDZONES	4 vs 4 game w/ ENDZONES	4 vs 4 game w/ ENDZONES	4 vs 4 game w/ ENDZONES	4 vs 4 game w/ ENDZONES	4 vs 4 game w/ ENDZONES

TGM ULTIMATE UNIT - *Lesson* # 1

Date 5/21/07 *Site* Cliffside Elementary *Students* 19 5th Graders

Equipment

- 20 Numbered vests - 10 Frisbees - 30 Lg Cones - 16-20 Sm Cones

Introduction to Ultimate Frisbee **=** Show me what you know and can do**!!!**

Tactical Problem to be solved **=** Maintaining Possession

Objectives - The students will:

1. Identify team success and team challenges to maintaining possession of Frisbee during the Game 1 learning situation.
2. Improve the accuracy of passing and catching with teammates by using passing cues during the team practice
3. Set goals for improving game play for next class

Welcome [10:50 – 11:00 (10 minutes)]

- Name tags
- Expectations – GOOD SPORTING BEHAVIOR
- Tell me what you know about ultimate Frisbee (poster)
- Assign teams (uniforms)

Game 1 = 5 vs. 5 Possession Game [11:00 – 11:15 (15 minutes)]

Tactical Problem to be solved = Maintaining Possession

Basic rules to play game

- **Must stay inside the cones**
- **NO CONTACT**
- **Player with Frisbee can't move (one foot is frozen-pivot possible)**
- **Throw in by opposite team from location dropped, deflected, or sent out of bounds**
- **1 point for every three complete passes**

4 teams/2 courts

4 GREEN w/ * substitute/coach	4 YELLOW w/ * substitute/coach
4 RED w/ * substitute/coach	4 BLUE w/ * substitute/coach

Q & A [11:15 – 11:20 (5 minutes)]

- How many points did your team get during Game 1?
- Why did you get lots or points or not many points during Game 1?
- Where is the best location to pass so your teammate can catch the Frisbee?

- Did you make any adjustments or changes during the game to try to get more points?

Situated Practice = Partner [11:20 – 11:30 (10 minutes)]
Practice A = Stationary Passing and Receiving
Practice B = Walking and Passing *or* Pass & Move

Tactical Problem to be solved = Maintaining Possession
Instructions:

- **Stay inside your cones**
- **Player with Frisbee can't move**
- **Players without Frisbee are walking in team area**
- **Pass to teammates using the following steps:**
  - **Stomach**
  - **Step**
  - **Release**
  - **Point**
- **One point for every successful pass and catch**

X X X X X	

Game 2 ******* NO GAME 2 for DAY 1 *******

Brief Closure (during exit)

You will play and practice more tomorrow and I am expecting you to continue to improve your maintaining possession of the Frisbee. Same teams and same numbered shirts.

TGM ULTIMATE UNIT - *Lesson* # 2

Date 5/22/07 *Site* Cliffside Elementary *Students* 19 5th Graders

Equipment

- Numbered vests (green, blue, yellow, red)
- 10 Frisbees (only using 4 large Frisbees today)
- 16-20 Small Cones (lg. & small cones enough to establish clear boundaries

Tactical Problem to be solved = Maintaining Possession ***continued …***

Overall T Goal – Students will show improved passing and catching and start thinking about moving to support

Objectives - The students will:

1. Review ways that teams can improve the amount of time they are able to maintain possession during Frisbee games and practice.
2. Improve the number of accurate catches during the team practice
3. Set goals for improving game play for next class

Welcome **[10:50 – 10:55 (5 minutes)]**

- Eric Intro
- Names & Teams
- Survey – Data Collection

Game 1 = 4 vs. 4 Possession Game

playing different team

[10:55 – 11:10 (15 minutes)]

Tactical Problem to be solved = Maintaining Possession

Basic rules to play game:

- **Stay inside the cones**
- **NO Contact & Can't take Frisbee (only blocks or interceptions)**
- **Player with Frisbee can't run (has frozen/cement foot)**
- **Throw in by opposite team from location Frisbee is dropped, deflected, or sent out of bounds**
- **1 point for every three complete passes (keep score)**

4 teams/2 playing areas

4 vs. 4 ** 1 substitute **	
4 vs. 4 ** 1 substitute **	

Game 1 TGM QUESTIONNAIRE

Q & A [11:10 – 11:15 (5 minutes)]

- How is your team doing at maintaining possession?
- What are the best ways to throw and catch the Frisbee?
- What should your teammates do if you have the Frisbee?

Situated Practice – 3 vs 1 Grids **[11:15 – 11:22 (7 minutes)]**

Tactical Problem to be solved = Maintaining Possession

Instructions:

- **Stay inside cones**
- **Defender is at a walking speed (may change to jogging)**
- **One offensive player has Frisbee and other two offensive players need to be in supporting positions**
- **Offensive players try and throw and catch as many times as possible without dropping or having Frisbee blocked or intercepted by defender**
- **Fair rotation: offensive player that makes mistake goes to defender-defender goes to sideline if sub-sub takes place of offensive player going to defense.**

3 vs 1 ** 1 substitute **	3 vs 1 ** 1 substitute **
3 vs 1 ** 1 substitute **	3 vs 1 ** 1 substitute **

Game 2 – 4 vs 4 possession game

playing different team [11:21 – 11:30 (7 minutes)]

Same rules as Game 1/4 teams/2 playing areas

4 vs. 4 ** 1 substitute **
4 vs. 4 ** 1 substitute **

Closure (during exit)

Game 2 TGM QUESTIONNAIRE

TGM ULTIMATE UNIT - *Lesson* # 3

Date 5/23/07 *Site* Cliffside Elementary *Students* 19 5th Graders

Equipment

- Numbered vests
- 10 Frisbees (only using 4 large Frisbees today)
- 16-20 Cones (lg. & small cones enough to establish clear playing areas + endzones)

***Tactical Problems* = Attacking the Endzone & Maintaining Possession (cont.)**

Overall T Goal – Students will focus on scoring in the opponents endzone.

Objectives - The students will:

1. Maintain possession by making accurate passes and good catches to move Frisbee toward opponents endzone.
2. Move the Frisbee quickly to attack their opponents endzone
3. Continue to move to positions of support for teammates with Frisbee.

Welcome **[10:50 – 10:53 (3 minutes)]**

- Eric Intro –**Focus on ATTACKING THE ENDZONE** & emphasize role of maintaining possession to move to a scoring position.
- Team setup in designated area & uniforms
- Good Sporting Behavior (Fair & Safe Play)

Game 1 = 2 vs. 2 half court games w/ endzones

*2 players from one team playing 2 players from different team***[10:54 –11:04 (10 min)]**

Tactical Problems = Maintaining Possession & Attacking the Endzone

Basic rules to play ½ court games

- **Must stay inside the cones**
- **NO Contact & Can't take Frisbee**
- **Player with Frisbee can't run (Frozen foot)**
- **Throw in by opposite team from location dropped, deflected, or sent out of bounds**
- **1 point for every three complete passes & 2 points for touchdown (pass caught in endzone that was thrown from outside endzone)**
- **Must check Frisbee at top of court after each touchdown**

Endzone	*endzone*
2 Yellow vs. 2 Green	2 Red vs. 2 Blue
2 Yellow vs. 2 Green	2 Red vs. 2 Blue
Endzone	*endzone*

Q & A [11:05 – 11:09 (4 minutes)]

- What was working or not working during the half court games?

- Tell me about the decisions you are making when you have the Frisbee and when you do not have the Frisbee?
- What does your team need to focus on during today's practice?

TGM Learning Questionnaire – Question Time

Situated Practice: Pass & Move + shooting at target

[11:10 – 11:20 (10 minutes)]

Tactical Problem to be solved= Maintaining Possession +Attacking Endzone

General Instructions:

- **Stay inside cones**
- **Defender is at a walking speed (may change to jogging)**
- **One offensive player has Frisbee and other two offensive players need to be in supporting positions**
- **Offensive players throw and catch as many times as possible without dropping or having Frisbee blocked or intercepted by defender**
- **<u>Fair rotation: offensive player that makes mistake goes to defender-defender goes to sideline if sub-sub takes place of offensive player going to defense.</u>**

3 vs 1 ** RED TEAM **	3 vs 1 ** YELLOW TEAM **
3 vs 1 ** BLUE TEAM **	3 vs 1 * GREEN TEAM = 1 substitute *

Game 2 – 5 vs. 5 or 4 vs. 4 w/ endzones

playing different team **[11:21 – 11:30 (10 minutes)]**

Endzone	*endzone*
4 Green vs. 4 Yellow	4 Red vs. 4 Blue ** 1 substitute **
Endzone	*endzone*

TGM Learning Questionnaire – Game 2

Closure/Goals for next week (during exit)

TGM ULTIMATE UNIT - *Lesson #* 4

Date 5/24/07 *Site* Cliffside Elementary *Students* 19 5th Graders

Equipment

- Numbered vests
- 10 Frisbees (only using 4 large Frisbees today)
- 16-20 Cones (lg. & small cones enough to establish clear boundaries)

***Tactical Problem to be solved* = Attacking the Endzone (continued)**
Maintaining Possession (continued)

Overall T Goal – Students will maintain possession while moving the Frisbee toward the opponents goal area & scoring in the opponents endzone.

Objectives - The students will:

1. Develop strategies for maintaining possession and attacking their opponents endzone.
2. Increase the number of points accumulated during a game.
3. Continue to move to positions of support for teammates with Frisbee.

Welcome [10:50 – 10:53 (3 minutes)]

- Eric Intro - what have you learned/improved during the first three days of the ultimate Frisbee unit.
- Team setup & uniforms
- Today's focus

Game 1 = 4 vs. 4 w/ endzones [10:54 – 11:04 (10 minutes)]
playing different team

Tactical Problems = Maintaining Possession & Attacking the Endzone

Basic rules to play game

- **Must stay inside the cones & NO Contact**
- **Player with Frisbee can't run (frozen foot)**
- **Throw in by opposite team from spot dropped, deflected, sent out**
- **2 points for every touchdown**
- **10-second rule (can only hold onto Frisbee for 10 seconds & defender can count slowly)**

Endzone	*endzone*
4 Yellow	4 Green ** 1 substitute **
4 Blue	4 Red
Endzone	*endzone*

TGM Questionnaire – Game 1

Q & A [11:05 – 11:09 (4 minutes)]

- What was your team strategy to score a touchdown?
- What do you think about when you have the Frisbee?

- What do you think about when you <u>do not</u> have the Frisbee?

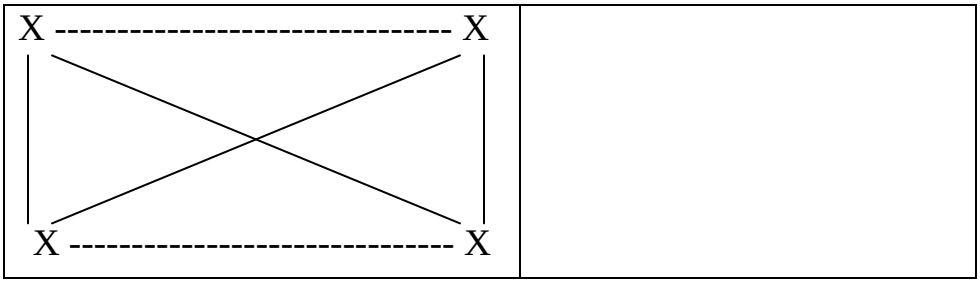
Situated Practice – Short & Long passes [11:10 – 11:20 (10 minutes)]

Tactical Problem to be solved = Maintaining Possession

General Instructions:

- **Stay inside cones**
- **Show me you are using the Throwing Cues:**
  - Stomach
  - Step
  - Release forward
  - Point at target
- **Catching options**
  - Open to receive Frisbee
  - One or two hands to catch
  - Move to Frisbee (don't wait)

STATIONARY LONG PASSES



* Extension – quick feet to approach Frisbee instead of waiting for Frisbee

* Extension – overlapping runs <u>or</u> switching field strategies

TGM Questionnaire – Practice Time

Game 2 – 4 vs. 4 w/ endzones [11:21 – 11:30 (10 minutes)]

Endzone	*endzone*
4 Yellow	4 Green ** 1 substitute **
4 Red	4 Blue
Endzone	*endzone*

Closure/Goals for next week (during exit)

Are you improving? Can you give me some examples?

Focus on defense next class

TGM ULTIMATE UNIT - *Lesson #* 5
(***make-up Ultimate PE class rescheduled during a recess-30 min***)

Date 6/6/07 *Site* Cliffside Elementary *Students* 19 5th Graders

Equipment

- Numbered vests
- 10 Frisbees (only using 4 large Frisbees today)
- 40 + Cones (lg. & small cones enough to establish clear boundaries)

***Tactical Problems to be solved* = Maintaining Possession by using a variety of throws/passes on offense & Person to Person defense**

Overall T Goal – Students will experiment with forearm throw/pass and use person to person defense.

Objectives - The students will:

1. Practice using forearm and backhand throws during game situations.
2. Continue to move to positions of support for teammates with Frisbee.
3. Improve efficiency of person to person defense by stalling offensive player with Frisbee or shutting down open player without the Frisbee.

Welcome
[12:30 – 12:34 (4 minutes)]

- Team setup & uniforms inside gym (?)
- Eric Intro – Tactical Problems

Game 1 = 5 vs 5 or 4 vs. 4 w/ endzones [12:35 – 12:41 (6 minutes)]
playing different team

Tactical Problems =
OFFENSE - Maintaining Possession by using a variety of throws/passes
DEFENSE - Person to person defense

Basic rules to play game:

- **Must stay inside the cones & NO Contact**
- **Player with Frisbee can't run *(frozen foot)***
- **Throw in by opposite team from spot dropped, deflected, sent out**
- **1 points for every touchdown *(this represents change to actual ultimate point system)***
- **10-second rule *(can only hold onto Frisbee for slow 10 seconds & defender can count slowly)***

Endzone	*endzone*
5 Green	**5 Yellow**
5 Blue	**4 Red**
Endzone	*endzone*

Q & A [12:42 – 12:44 (2 minutes)]

- What should we add to the game playing and practice to make the game more complex/challenging?

Demo's & Practice [12:45 – 12:50 (5 minutes)]

***Tactical Problem* - Maintaining possession by using a variety of passes**

*** Review Backhand throw (back of hand facing target) -**

- Stomach
- Step
- Release
- Point at target

*** Introduce "Flick" Forehand throw (face of hand facing target) –**

- Arm wide
- Thumb top/finger side
- Snap wrist
- Point at target

Game 2 – 5 vs 5 or 4 vs. 4 w/ endzones [12:51 – 12:56 (5 minutes)]

playing different team

Endzone	*endzone*
5 Yellow	5 Green
4 Red	5 Blue
Endzone	*endzone*

No Closure just **TGM questionnaire for GAME 2**

- PASS OUT ULTIMATE FRISBEE HANDOUTS !!!!!!!

TGM ULTIMATE UNIT - *Lesson #* 6

Date 6/11/07 *Site* Cliffside Elementary *Students* 19 5th Graders

Equipment

- Numbered vests
- 10 Frisbees (only using 4 large Frisbees)
- 40 + Cones (lg. & small cones enough to establish clear boundaries)

***Tactical Problems to be solved* = Person to Person defense**

Overall T Goal – Students will focus on person to person defense.

Objectives - The students will:

1. Attempt to block, follow, and stall a select player from other team when the other team has Frisbee.
2. Improve efficiency of person to person defense by stalling offensive player with Frisbee or shutting down open player without the Frisbee.

Welcome **[12:30 – 12:34 (4 minutes)]**

- Team setup & uniforms inside gym (?)
- Eric – Today's Focus/Tactical Problem = Person to Person Defense

---

Game 1 = 5 vs 5 or 4 vs. 4 w/ endzones [12:35 – 12:41 (6 minutes)]
playing different team

Tactical Problem = Person to Person Defense

Basic rules to play game:

- **Must stay inside the cones & NO Contact**
- **Player with Frisbee can't run *(frozen foot)***
- **Throw in by opposite team from spot dropped, deflected, sent out**
- **1 point for every touchdown *(this represents change to actual ultimate point system)***
- **10-second rule *(can only hold onto Frisbee for slow 10 seconds & defender can count slowly)***

Endzone	*endzone*
5 Yellow	**5 Green**
5 Blue	**4 Red**
Endzone	*endzone*

Q & A [12:42 – 12:44 (2 minutes)]

- How is the person to person defense working?
- What are some ways that you can improve your team's defense?

TGM QUESTION TIME QUESTIONNAIRE

Half court 2 vs 2 possession within team [12:45 – 12:50 (5 minutes)]

***Tactical Problem* – Person to person defense**

***Basic rules*:**

- **Split your team in half (fair teams)**
- **May have 1 player as sub-coach**
- **Try to maintain possession and attack endzone when you are on offense**
- **Try to follow, block, and stall the offensive player you are guarding when you are on defense**
- **1 point for each touchdown**
- **Must restart at top after every point**

* You and your teammates can choose to switch person you are guarding

---

Game 2 – 5 vs 5 or 4 vs. 4 w/ endzones [12:51 – 12:56 (5 minutes)]

playing different team

Endzone	*endzone*
5 Yellow	5 Green
4 Red	5 Blue
Endzone	*endzone*

Closure

- Ask about offensive and defensive strategies

TGM ULTIMATE UNIT - *Lesson # 7*

Date **6/13/07** ***Site*** **Cliffside Elementary** ***Students*** **19 5th Graders**

Equipment

- Numbered vests
- 10 Frisbees (only using 4 large Frisbees)
- 40 + Cones (lg. & small cones enough to establish clear boundaries)

Tactical Problems to be solved **= Combination of Offensive (maintain possession, attack the endzone, create and use space) and Defensive (person to person) Concepts.**

Overall T Goal – Students will determine the types of practice they need to improve their offense and/or defense.

Objectives - The students will:

1. Practice maintaining possession, creating space, and attacking endzone.
2. Attempt to block, follow, and stall a select player from other team when the other team has Frisbee.
3. Improve efficiency of person to person defense by stalling offensive player with Frisbee or shutting down open player without the Frisbee.

Welcome [11:00 – 11:04 (4 minutes)]

- Team setup & uniforms inside gym
- Review **GOOD SPORTING BEHAVIOR**
- Eric – Today's Focus/Review all Tactical Problems

Game 1 = 5 vs 5 or 4 vs. 4 w/ endzones [11:05 – 11:15 (10 minutes)]

playing different team

Tactical Problem = Combination of offensive and defensive concepts!!!

REVIEW ***Basic rules to play game:***

- **Must stay inside the cones & NO Contact**
- **Player with Frisbee can't run *(frozen foot)***
- **Throw in by opposite team from spot dropped, deflected, sent out**
- **1 point for every touchdown**

*** EVERY PLAYER MUST TOUCH FRISBEE BEFORE YOU CAN SCORE ***

- **10-second rule *(can only hold onto Frisbee for slow 10 seconds & defender can count slowly/stall)***

Endzone	*endzone*
5 Yellow	**5 Blue**
5 Green	**4 Red**
Endzone	*endzone*

** NO Q & A TODAY TO ALLOW MORE TIME FOR TEAMS TO DEVISE PLANS FOR PRACTICE **

Team choice for PRACTICE [11:16 – 11:31 (20 minutes)]

GOAL - Have teams determine practice activities to improve their offense and defense

Ideas if students get stuck:

- Half court ultimate
- 3 vs 1 grid/in box

TGM QUESTIONNAIRE AFTER PRACTICE

Game 2 – 5 vs 5 or 4 vs. 4 w/ endzones [11:32 – 11:42 (10 minutes)]

playing different team

Endzone	*endzone*
5 Yellow	5 Green
4 Red	5 Blue
Endzone	*endzone*

Closure

- Ask questions based on teacher observations – narrow feedback or questions to student decisions made on offense and/or defense

TGM ULTIMATE UNIT - *Lesson #* 8

Date **6/14/07** ***Site*** **Cliffside Elementary** ***Students*** **19 5th Graders**

- Numbered vests
- 10 Frisbees (only using 4 large Frisbees)
- 40 + Cones (lg. & small cones enough to establish clear boundaries)

***Tactical Problems to be solved* = Combination of Offensive (maintain possession, attack the endzone, create and use space) and Defensive (person to person) concepts (continued).**

Overall T Goal – Students will show what they know and determine the types of practice they need to improve their offense and/or defense.

Objectives - The students will:

1. Communicate with teammates about offensive and defensive strategies.
2. Improve efficiency of person to person defense by stalling offensive player with Frisbee or shutting down open player without the Frisbee.

Welcome [10:50 – 10:58 (8 minutes)]

- Team setup & uniforms inside gym
- Review **GOOD SPORTING BEHAVIOR**
- Eric – Today's Focus/Review all Tactical Problems

Game 1 = 5 vs 5 or 4 vs. 4 w/ endzones [10:59 – 11:05 (6 minutes)]

playing different team

Tactical Problem = ZONE DEFENSE

REVIEW ***Basic rules to play game:***

- **Must stay inside the cones & NO Contact**
- **Player with Frisbee can't run *(frozen foot)***
- **Throw in by opposite team from spot dropped, deflected, sent out**
- **1 point for every touchdown**

Modification if needed = EVERY PLAYER MUST TOUCH FRISBEE BEFORE YOU CAN SCORE

- **10-second rule *(can only hold onto Frisbee for slow 10 seconds & defender can count slowly/stall)***

Endzone	*endzone*
5 Yellow	5 Blue
5 Red	4 Green
Endzone	*endzone*

** NO Q & A TODAY TO ALLOW MORE TIME FOR TEAMS TO DEVISE PLANS FOR ZONE PRACTICE **

Team choice for PRACTICE [11:06 – 11:17 (12 minutes)]
** Focus groups 6 minutes each **

GOAL - Teams will determine practice activities to improve their person to person and/or zone defense.

Ideas if students get stuck:

- Half court ultimate (mix up teams if repeat activity from Day 7)
- 3 vs 1 grid/in box
- Teams of five one thrower, two offensive support players (need to break away from defenders), and two defenders.

Game 2 – 5 vs 5 or 4 vs. 4 w/ endzones [11:18 – 11:25 (7 minutes)]
playing different team

Endzone	*endzone*
5 Yellow	5 Green
4 Blue	5 Red
Endzone	*endzone*

Closure & Questionnaire **(11:25 – 11:30)**

TGM QUESTIIONNAIRE GAME 2

TGM Learning Situation Questionnaires

First Name: _____ Date _____

4. Why were you energized or <u>not</u> energized to get involved and play in the **<u>GAME 1</u>**? Please explain.

_____

_____

_____

5. Were you excited to learn or <u>not</u> excited to learn during the **<u>GAME 1</u>**? Please explain.

_____

_____

_____

What did you actually learn during **<u>GAME 1</u>**? Please give examples.

_____

_____

_____

First Name: _____ Date _____

1. Why were you energized or <u>not</u> energized to get involved in the **<u>QUESTION TIME</u>**? Please explain.

_____

_____

_____

2. Were you excited to learn or <u>not</u> excited to learn during the **<u>QUESTION TIME</u>**? Please explain.

_____

_____

_____

3. What did you actually learn during **<u>QUESTION TIME</u>**? Please give examples. _____

_____

_____

First Name: _____ Day _____

1. Why were you energized or <u>not</u> energized to get involved and play in the **<u>PRACTICE</u>**? Please explain.
   _____

_____

_____

2. Were you excited to learn or <u>not</u> excited to learn during the **<u>PRACTICE</u>**? Please explain.

_____
_____
_____

3. What did you actually learn during the **<u>PRACTICE</u>**? Please give examples.

_____
_____
_____

First Name: _____ Date _____

1. Why were you energized or <u>not</u> energized to get involved in the **<u>GAME 2</u>**? Please explain.
   _____

_____

_____

2. Were you excited to learn or <u>not</u> excited to learn during the **<u>GAME 2</u>**? Please explain.

_____
_____
_____

What did you actually learn during **<u>GAME 2</u>**? Please give examples.

_____
_____
_____

GPAI Invasion Game Template – 5th Grade TGM Ultimate Unit

Class 5th Grade Students at Cliffside Elementary School Observer/Evaluator _____

Team Color: YELLOW BLUE RED GREEN
Location: GYM FIELD BLACKTOP

Components/Criteria:

1. **SKILL EXECUTION** – Student passes the Frisbee accurately (i.e., flat throw waist level) and throw reaches intended receiver
2. **DECISION MAKING** – Student makes an appropriate choices when passing (i.e., passing to unguarded teammates to maintain possession & set up scoring opportunity)
3. **SUPPORT** – Student maintains or attempts to move into position to receive a pass from teammate (i.e., backwards to reset attack or forward toward the goal)

Name	Games Playing Experiences	Skill Execution - Passing Effective/Efficient = E Ineffective/Inefficient = I	Decision Making Appropriate = A Inappropriate = I	Support Appropriate = A Inappropriate = I
		Day _____	Day _____	Day _____
	GAME 1			
	GAME 2			
	GAME 1			
	GAME 2			
	GAME 1			
	GAME 2			

Note, I created this tool using Figure 8 on p. 156 of Sport Foundations for Elementary Physical Education: A Tactical Games Approach (2003) by Mitchell, Oslin, & Griffin as a reference when developing this tool.

GPAI Invasion Game Template – 5th Grade TGM Ultimate Unit

Class 5th Grade Students at Cliffside Elementary School Observer/Evaluator _____

Team Color: YELLOW BLUE RED GREEN
Location: GYM FIELD BLACKTOP

Components/Criteria:

- **SKILL EXECUTION-PASSING = Student passes the Frisbee accurately with flat throw that reaches intended receiver**
- **SKILL EXECUTION-RECEIVING =** Student catches a pass (e.g., catches the Frisbee with one or two hands) and does not drop Frisbee.
- **DECISION MAKING** = Student makes an appropriate choices when passing (i.e., passing to unguarded teammates to maintain possession and set up scoring opportunity)
- **SUPPORT** = Student maintains or attempts to move into position to receive a pass from teammate (i.e., backwards to reset attack or forward toward the goal)

Name	Games Playing Experience	Skill Execution (Efficient or Inefficient)	Skill Execution (Efficient or Inefficient)	Skill Execution (Efficient or Inefficient)	Skill Execution (Efficient or Inefficient)	Skill Execution (Efficient or Inefficient)	Skill Execution (Efficient or Inefficient)	Skill Execution (Efficient or Inefficient)	Skill Execution (Efficient or Inefficient)
		Day 1	**Day 2**	**Day 3**	**Day 4**	**Day 5**	**Day 6**	**Day 7**	**Day 8**
	GAME 1								
	GAME 2								
	GAME 1								
	GAME 2								
	GAME 1								
	GAME 2								

Note, I used Figure 8 on p. 156 of Sport Foundations for Elementary Physical Education: A Tactical Games Approach (2003) by Mitchell, Oslin, & Griffin as a reference when developing this tool.

Individual GPAI Tally Report Template for 8-Days Ultimate Games Playing

Class 5th Grade Students at Cliffside Elementary School Evaluator **Eric J. Carpenter**

Components/Criteria:

- **SKILL EXECUTION-PASSING = Student passes the Frisbee accurately with flat throw that reaches intended receiver**
- **SKILL EXECUTION-RECEIVING =** Student catches a pass (e.g., catches the Frisbee with one or two hands) and does not drop Frisbee.
- **DECISION MAKING** = Student makes an appropriate choices when passing (i.e., passing to unguarded teammates to maintain possession and set up scoring opportunity)
- **SUPPORT** = Student maintains or attempts to move into position to receive a pass from teammate (i.e., backwards to reset attack or forward toward the goal)

STUDENT NAME _____ TEAM COLOR_____									
		Day 1	*Day 2*	*Day 3*	*Day 4*	*Day 5*	*Day 6*	*Day 7*	*Day 8*
Skill Execution - *THROWING*	**GAME 1**	E = I =	E = I =	E = I =	E = I =	E = I =	E = I =	E = I =	E = I =
	GAME 2	***No Game 2***	***No Game 2***	E = I =	E = I =	E = I =	E = I =	E = I =	E = I =
Skill Execution - *CATCHING*	**GAME 1**	E = I =	E = I =	E = I =	E = I =	E = I =	E = I =	E = I =	E = I =
	GAME 2	***No Game 2***	***No Game 2***	E = I =	E = I =	E = I =	E = I =	E = I =	E = I =
Decision Making (Appropriate or Inappropriate)	**GAME 1**	A = I =	A = I =	A = I =	A = I =	A = I =	A = I =	A = I =	A = I =
	GAME 2	***No Game 2***	***No Game 2***	A = I =	A = I =	A = I =	A = I =	A = I =	A = I =
Support (Appropriate or Inappropriate)	**GAME 1**	A = I =	A = I =	A = I =	A = I =	A = I =	A = I =	A = I =	A = I =
	GAME 2	***No Game 2***	***No Game 2***	A = I =	A = I =	A = I =	A = I =	A = I =	A = I =

Modified TGM Teacher Performance Checklist for Self or Peer Assessment

Set up	***Criteria for set up***			***Comments***
Set up	E - Modified equip is used (# & size of balls, equip, etc.)	**Y**	**N**	
	S - Modified playing area is created w/ clear boundaries	**Y**	**N**	
	P – S's organized in small groups	**Y**	**N**	
Learning Situation	Criteria for learning situation			***Comments***
GAME 1	States concepts/problem of game.	**Y**	**N**	
	Game choice demonstrates problem to be solved	**Y**	**N**	
	Uses FREEZE technique to adjust.	**Y**	**N**	
	Modifications of game are made.	**Y**	**N**	
	Maximizes student involvement	**Y**	**N**	
Q & A	Questions align with problem	**Y**	**N**	
	Questions are linked to student's Game 1 performance.	**Y**	**N**	
	Students' answers are used in Q/A	**Y**	**N**	
	Uses "how" questions to lead/guide to the tactical problem to be solved.	**Y**	**N**	
	Does not over-question	**Y**	**N**	
	Maximizes student involvement.	**Y**	**N**	
Situated Practice	Teacher models/demonstrates to help set-up the situated practice.	**Y**	**N**	
	Teacher uses at least 3 clear, crisp teaching cues for skill or movement	**Y**	**N**	
	Practice is developmentally appropriate	**Y**	**N**	
	Practice is aligned with lesson problem	**Y**	**N**	
	Practice is game like.	**Y**	**N**	
	The master lesson is demonstrated in context.	**Y**	**N**	
	Sufficient repetitions or prompts are provided within diverse conditions.	**Y**	**N**	
GAME 2	Reinforces the situated practice.	**Y**	**N**	
	Verbalizes rule modifications according to performance of game 1.	**Y**	**N**	
	Meets developmental needs	**Y**	**N**	
Closure	Criteria for Closure			***Comments***
Closure	Game problem is revisited.	**Y**	**N**	
	Tactics developed are discussed and tied to the problem.	**Y**	**N**	
	Present lesson is tied to problems or developments in future lesson.	**Y**	**N**	
Overall	Uses the Game-Q&A-Practice-Game lesson sequence or appropriate modified sequence due to constraints	**Y**	**N**	

Modified from *The Tactical Games Model Teaching Performance Checklist* by Fisette, Bohler, Carpenter, & Griffin (2006)

SAMPLE Self or Peer TGM Teaching Assessment Tool

TEACHER(S) BEING OBSERVED _____ NAME OF PERSON COMPLETING ASSESSMENT _____

	5 Points	4 Points	3 Points	0 Points
*Equip., Space, People	○ Variety of Equipment used to exaggerate game ○ Playing area and boundaries very clear ○ Teams organized well	○ Equipment choice was appropriate ○ Playing area and boundaries established ○ Teams organized in advance	○ Struggled with organizing equipment, space, and people (teams)	○ Teacher(s) were unprepared for lesson
Game 1	○ Game choice exaggerates a tactical problem to be solved ○ Game maximizes student involvement	○ Games focused on a tactical problem and good amount of student involvement	○ Tactical problem not clear and/or some instances of standing around/sitting for long periods of time	○ This game was unsafe ○ Negative sport experience
Q & A	○ Questions align with tactical problem ○ Does not over-question *(stays between 3-5 questions)* ○ Maximizes student involvement by seeking more than one answer per question	○ Questions align with tactical problem but too many questions or did not try to include everyone	○ Needed to better connect student performance in game 1 to tactical problem or need to select better questions	○ Did not ask any questions
Practice	○ Teacher uses at least 3 cues for skill or movement + demo ○ Practice is game-like and aligned with tactical problem ○ Sufficient time, repetitions, and/or prompts provided within diverse/varied conditions	○ Teacher uses cues for skill or movement + demo ○ Practice is aligned with tactical problem ○ Sufficient time allowed for many repetitions	○ Cues or demo were a little unclear ○ Practice task too easy or too hard (good attempt) ○ Not enough time to practice	○ Practice did not help teams improve for Game 2
Game 2	○ Reinforces the practice/opportunity to apply what was practiced ○ Clear communication about how Game 2 is more complex than Game 1	○ Reinforces the practice/opportunity to apply what was practiced ○ Needs to be more complex	○ Good attempt but disconnected from Game 1, Q & A, and Practice	○ This game was unsafe ○ Negative Sport experience
Column totals	**Total =**	**Total =**	**Total =**	**Total pts = 0**
Total points _____ out of 25 points				

Modified from *The Tactical Games Model Teaching Performance Checklist* by Fisette, Bohler, Carpenter, & Griffin (2006)

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