

SERAJ AL-MONEER Middle School Students' Game Play Performance and Levels of
Enjoyment While Engaged in Two Curricular Models

By

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DEDICATION

Dr. Khalid (Dad), I dedicate this work to your memory. From you I have learned the benefits of hard work, how to forgive others as myself, and the joy of life worth living. Your loyalty, devotion and love lives through me. I love you.

Mom, you have always had room in your prayers for me. Without which, I would not have attained my educational goals. Your support, encouragement, and long distant telephone calls have been instrumental in getting me through. I love you

Last, to all my brothers, sisters and friends who supported me with their calls and encouraged me to obtain a higher education degree. Thank you.

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ABSTRACT

The purpose of this research study was to determine if middle school students' game play success and enjoyment would be impacted within a four week period. Game play was assessed using the Game Performance Assessment Instrument (GPAI) and enjoyment was measured with the Physical Activity Enjoyment Scale (PEAS). The SERAJ AL-MONEER Middle School students experienced soccer for four weeks. They spend two weeks within a traditional technically focused Physical Education (PE) unit and two weeks in using the teaching game for understanding approach (TGfU). This study was conducted with grade seven and eight students in intact classes.

Both the GPAI and the PAES were administered at the conclusion of each two week unit. Statistical analyses were employed to determine differences based on grade level or teaching methodology utilized.

Results of this study found that the grade levels and treatment types had no significant main effects on neither enjoyment nor performance measures. Interaction of grade levels and treatment types was found to have significant effect on game performance measures. It was found that the participants from grade seven perceived significantly higher average performance score with TGfU than traditional PE. The finding is reversed for grade eight participants. The grade eight participants perceived significantly higher average performance score with traditional PE than TGfU.

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CHAPTER I

INTRODUCTION

In Kuwaiti education physical education is a significant subject area. As a physical education teacher for three years, I experienced many secondary students who stopped contributing in physical education class. This behavior alarmed me. Now I have selected as my graduate project to study what might affect the perception and undesirable attitudes Kuwaiti students hold to their physical education classes that might decrease their level of participation in middle school. This decline in participation during middle school is not unusual.

For example, King, Robertson, and Warren (1985) asserted that Canadian students become less active as they get older. Van Wersch, Trew, and Turner (1982) claim that children's level of participation and interest in physical education reduced as they got older (cited in Treasure and Roberts, 2001). In his earlier of Kuwaiti middle school physical education Alenezi (2005) reported similar findings. Students characterized their high level of participation in physical education classes during elementary school at 71%, while during middle school their high level of participation dropped to 51.8%. By high school, those reporting a "high level of participation" had fallen to 8.7%. Investigating students' attitudes toward these classes and the activities that mark their curricula might help explain the decreased participation among Kuwait middle school students.

Physical education curricula have predominately utilized games as a means of exercise and not necessarily to achieve educational goals (Holt, Stream, & Bengoechea, 2002). Teaching games for understanding (TGfU) seeks to integrate games into the

physical education curriculum as a meaningful way to enhance educational objectives. TGfU was developed by Bunker and Thorp (1982) as an alternative to the traditional approach to physical education. Their intention was to help students make the transition from skill development to better game play. TGfU values game play strategy and tactics while also explaining the correct physical movement. TGfU aims to generate a greater understanding of all aspects of games, through increasing physical activity levels, student motivation and engagement by making the physical education lesson more enjoyable for the learners (Forrest, Webb and Pearson, 2006). TGFU has been promoted as a curricular alternative for physical education since the early 1980s.

The development of the Teaching Games for Understanding approach has stirred up much debate in physical educational curriculum. Proper tactical awareness combined with effective skill selection/execution is considered to be an indication of an individual's level of game performance capability. This is what TGfU strives to develop. The traditional "technique" approach focused on initial skill development before the students were allowed the opportunity to utilize the skills in a game environment. Tactics were not addressed until a moderate level of skill was obtained. The TGfU curricular approach has led to research most of which has concentrated on comparing this tactical approach to the technique approach (Alison and Thorpe, 1997; Rink, 1996; Turner and Martinek, 1992). This research has still not given a definitive direction. Most of the studies have been inconclusive for a variety of reasons; some due to inadequate research design. While enjoyment might be enhanced was it still at the expense of skill learning. This was the result found by Streaan and Holt's (2000) in their study all participants acknowledged that they found the TGfU oriented lessons to be more fun there was little evidence supplied to

say the students improved in their game performance. Rink, French, and Graham (1996) found that much of the research comparing the technique and tactical models of teaching was that the two methods were difficult to discern.. This concern is justified and difficult to eliminate, while the TGfU focuses on adding the tactical approach early through small sided game play opportunities it still creates a venue in which the students have to become more technically proficient for success.

Griffin, L., Mitchell, A., & Oslin, L (1997), in their textbook which is devoted to introducing prospective teachers/coaches to an integrated tactical/skill approach for teaching games, state that “a tactical approach...lets your students experience the excitement of actual play before they begin practicing specific skills....When they understand why each skill is important, students can apply the skills effectively during game.”. In order to properly implement the TGfU model the teacher must be able to integrate both the tactical and technical dimensions of the game being instructed.

CHAPTER II

REVIEW OF LITERATURE

This research project concerns middle school students' ability to become more competent in their ability to perform sports skills and tactics in game play situations. This is one of the basic premises built into the Teaching Games for Understanding curricular model. This model has also shown to enhance students' enjoyment within the physical education and sport environment. This review will discuss: the TGfU model; the assessment of game play; student enjoyment and assessment; and finish with a discussion of the educational context in which the study will take place.

Teaching Games for Understanding (TGfU)

Games are not new to most physical education programs, where they often constitute a majority of available time (Holt, Streat, and Bengoechea, 2002). TGfU was designed to address the issue that students who could execute skill in practice settings could not necessarily utilize the same skill properly when placed in a game. Mandigo, Butler, and Hopper (2007) found that in the traditional approach students lacked technical skill transferability to game situations from the drills they could perform, that the students felt that lack of success in drill work would make them less likely to perform in the game setting, and that the students were more motivated to play rather than focus on just skill acquisition.

Since the inception of TGfU, many have found it to be a valuable way to instruct students in physical education (Rovegno & Dolly, 2006). Griffin, Mitchell and Oslin (1997) seminal introduction of TGfU to North American audiences noted three main reasons this approach might enhance student learning. By allowing the students to

actually play the game fostered the opportunity for the children to take responsibility for their learning. Studies investigating TGfU have revealed benefits for the students. These include allowing the students' to develop at their own rate as the teacher facilitates the learning situation which in turn allows the student to undertake and comprehend game play at a deeper level, (Butler, Griffin, Lombardo, & Nastasi, 2003; Webb & Pearson, 2008). The way in which TGfU combines game forms based on tactical decisions allows for greater transferability across multiple sports as students can focus on individual skills that separate the sports. By becoming more proficient at game play the activities also become more enjoyable for the learners.

Thorpe (1990) has suggested that with TGfU even a person with limited technical ability can now play the game more competitively. Skill acquisition is no longer separated from the game but embedded in a series of mini-games and a process of teacher questioning which develops the students' critical thinking and problem solving skills. The TGfU approach has been postulated as a means to both improve students' game performance and increasing enjoyment levels for participating in physical activity (Holt et al. 2002). This assertion has been supported by a study by Webb and Pearson (2008) who found that as students engaged in TGfU developed better skills they also increased their actively engaged participation in the physical education lesson because of the increased enjoyment. Werner, Bunker, and Thorpe (1996) have suggested that teaching games using TGfU will not only improve students' game performance but also "improve their enjoyment and participation in games, which might lead to a healthier lifestyle" (p.32). Griffin, Oslin, and Mitchell (1997) have postulated that the TGfU approach will

increase students motivation and desire to be active more so than the traditional physical education teaching methodology.

Game Performance Assessment Instrument (GPAI)

The Game Performance Assessment Instrument (Oslin et al., 1997) was developed to measure “game performance behaviors that demonstrate tactical understanding, as well as the player’s ability to solve tactical problems by selecting and applying appropriate skills” (p. 231). Since the focus for the learner has moved from the extent to which they can reproduce sport skill to a measure of tactical awareness an instrument had to be developed that assessed what now was being taught. The Game Performance Assessment Instrument was designed to meet this task. Depending on the game type would modify the components examined by the assessor. Game performance for an invasion game such as soccer requires the assessor summarize the students’ ability to make appropriate game decisions, properly execute skills, and support their teammates in both offensive and defensive situations.

Enjoyment in Physical Education

Furlough’s (2003) theory of enjoyment competence proposes that long term physical activity participation is developed through early enjoyable physical education experiences. The level of challenge involved within a particular task also impacts intrinsic motivation and the participants’ willingness to continue participation. Furthermore, motivation is more likely to be enhanced if the task is self-directed. This is a tenant of cognitive evaluation theory that states that intrinsic motivation is dependent on self-determined behavior.

Within the context of school the curriculum experienced is determined by the teacher rather than the students. It has been found that girls typically enjoy individual activities and boys were more inclined toward team games. Because of the emphasis on games in physical education curriculum the boys typically have higher levels of enjoyment and motivation to participate. Since a positive physical education experience impacts future physical activity levels the teacher should be sensitive to what students enjoy as part of their curricular decisions.

Physical Activity Enjoyment Scale (PAES)

The Physical Activity Enjoyment Scale (PAES) originally utilized a seven point likert scale on an 18- item inventory. The scale was developed with the definition of enjoyment being pleasure derived from physical activity participation (Motel et al., 2001). Internal consistency for the PAES has been established for exercise cycling and jogging on a trampoline by Kendzierski and DeCarlo (1991) who found a Cronbach's coefficient alpha and indicated a value of .96.

Motel et al. (2001) delivered indication of concept cogency assenting analysis of four different models exhibiting hypothetical relationships between sport participation, physical activity and enjoyment. These researchers adapted the PAES instrument into a 16 item questionnaire scored using a five point like scale: 5= agree a lot; 4= agree; 3= do not agree nor disagree; 2=disagree; and 1=disagree a lot. They also reworded some items to fit the lower age group.

The Education System in Kuwait

The Kuwaiti public educational structure comprises of three basic stages of education (Elementary, Intermediate, and Secondary) and four ranks within each level,

for a complete of 12 years of education. Education is required for all Kuwaiti citizens at the elementary and intermediate levels (eight years). The government, characterized by the Ministry of Education, offers free education for all Kuwaitis and resident non-Kuwaitis. While the educational method in Kuwait splits males and females in general education, all students accept identical rights of education. Similarly, all female and male students in the three levels of public education accept identical services and resources-textbooks, constructions, educators and curriculum-provided by the Ministry of Education. Female and male students are educated practically equal matters by distinct staff of the same gender in discrete school constructions. Kuwait has assumed great care to education for several years. Article 40 in the Constitution of the State of Kuwait (The State of Kuwait, 1962) states that:

Education is a right for Kuwaitis, guaranteed by the State in accordance with law and within the limits of public policy and morals. Education in its preliminary stages will become popular and free in accordance with law. The State will devote particular care to the physical, moral and mental development to youth. (p. 11)

There are two different structures in high school: the traditional and the Credit structures. In the eighth grade, students' choice one of these two structures for their four years in high school, grades 9-12. Consequently, it updates us about the standing of these two differences structures so the students select wisely between them because it is the manner life study for all student. The next section offers specifics about the differences and similarities between these two structures.

High School: General System

All students in elementary school, until fourth grade, learn mathematics, Arabic and English languages, Islamic education, music, art, science, national education, physical education, and social science. In the intermediate level and during the main two years of secondary level, students remain their study of these similar topics plus computer science, social studies, and home economics for females and practical trainings for males. In the past two years of secondary school, all students have the selection to study whichever the literacy path or the scientific path. Literacy paths contain Arabic, French, English language, Islamic education, mathematics, art, computer science, physical education, social studies, sideways with home economics (for females) and practical lessons (for males). Scientific paths contain Arabic and English languages, Islamic education, mathematics, science, art, physical education, and computer science sideways with home economics (for females) and practical lessons (for males) (Kuwait Ministry of Education, 1996).

High School: Credit System

The credit structure created in Kuwaiti high school level at the end of 1970 (Jamal, 1987). It is not a secluded organism however a public structure activated by the Ministry of Education. Parents and students have a optimal to choice the general or credit structure. Both structures are much related in many salutations, however in some greetings there is one major not the same, which is, they are dissimilar. One of these differences can be realized in the way in which they proposal physical education. .the students also can select among two majors dependent on their importance.

According to the Kuwaiti Ministry of Education (1996), the credit structure school year involves of two 15-week terms and a seven-week summer term. In direction to graduate from high school, students requisite complete at least 40 credits that contain shared curriculum, path requirements, additional requirements, and elective courses (physical education is one of these). According to Jamal(1987), students' grades in this structure "are averaged by multiplying the number of units for each class times the points earned, adding the hours for each class, and dividing the sum by the total number of units" (p. 20). Physical education class is measured one of the main themes that all students need study from elementary school over intermediate and secondary school in Kuwait. The significance of physical education for all students in the three levels education seems in the Kuwaiti composition. Article 10 states: "The country cares for the young and protects them from exploitation and from moral, physical, and spiritual neglect." Moreover, the third of the secondary education aims requires supportive students to benefit them shape their individuality, expressively and materially (Kuwait Ministry of Education, 1996).

Physical Education in High School

Physical education is an basic part of the Kuwaiti curriculum for both males and females, at all levels- elementary, intermediate, and high school and in each section, even though the curriculum is different in certain a view each level and between genders. According to the Kuwait Ministry of Education (2004), the activities of physical education for boys and girls at the intermediate level are as follows:

1. Boys' activities: a. Group sports e.g., (soccer, basketball, volleyball, and field handball)

b. Path and field trials e.g., (short and long distance running; relay races; hurdling; shot put; and long, high, and triple jump) c. Gymnastics

2. Girls 'activities: a. Group sports (e.g., basketball, volleyball, and field handball)

b. Path and field trials (short and long distance running, relay races, hurdling, javelin and discus throw, shot put, and long and high jump) c .Gymnastics d. Physical or aerobic exercises with music.

Furthermore to the above events, students in the credit structure can choice events as elective courses such as tennis, racquetball or health education. Moreover, students in the credit structure accept physical education class three times each week with 50-minute periods, and their physical education class show results in a grade that is factored in to the students' GPA built on their shows in classes and exams. On the other hand, in the general structure, students join in physical education class only once each week for 45 minutes, and their membership does not get a grade that amounts as measure of the student's GPA. As well, there is no standardized assessment of physical education (Kuwait Ministry of Education, 2001).

The Purpose of the Study

The purpose of this study was to compare levels of student enjoyment across two different types of instruction: a traditional PE class and a PE class using a teaching game for understanding. Can students' improve game play based on the delivery of any or all of these units? Specially, does TGFU raise the learners' game play? Can physical educators use play as an active plan in their curriculum to raise learners' involvement?

- 1) Thus, the primary purposes of this study are: (1) to determine whether Game Performance Assessment Instrument scores

improved over the two week intervention and in one four week study.

- 2) Compare levels of enjoyment based on instructional delivery methods.

CHAPTER III

METHODS

Participants in the study were asked to complete the Physical Activity Enjoyment Scale at the end of both soccer units to assess their level of enjoyment having been taught through traditional PE and through Teaching Games for Understanding. That means each group took this measurement at the end of two weeks and again at the end of four weeks.

Participants

Two intact Seraj Al Moneer School (seventh and eighth grade) classes were involved in this study. All participants were recruited from Kuwait. Sixty participants (consisting of 60 boys, 30 from the seventh grade and 30 from the eighth grade, between the ages of 14-15 years) were enlisted for participation. Students at these schools attended physical education daily for 45 minutes under the direction of a teacher certified in physical education. The seventh grade was given the traditional PE class, and the eighth grade were given TGFU in the first two weeks of the study, and in the second two weeks, the seventh grade was given TGFU, and the eighth grade was given the traditional PE class in a total of 4 weeks study, measuring the enjoyment in the end of class on the last day of each unit of the instructed, beside measuring GPAI after the study. The physical education teachers were requested to join in this study development and used practice games as a amount of the strategic physical education curriculum. The school was selected based on their active gaming facility. In the interest of confidentiality, participant identification was protected in this study.

Procedure

Instrumentation

The students' ability to utilize tactics while playing soccer will be assessed using the GPAI. This is an event recording instrument that the researcher has had experience utilizing in both live and taped environments. He also has had extensive experience using other systematic observation instruments including QMPTS, and ALT-PE. Twenty hours were spent becoming proficient at utilizing the GPAI in both taped and live teaching episodes.

The approval of Institutional Review Board at Seraj Al Moneer and MTSU stayed attained previous to statistics group toward confirm the defense of hominid topics. Learners were then fortified toward join in this revision. The members (seventh and eighth grade) classes were assigned into one of two assemblies built on altered styles of instruction traditional PE and PE using the teaching games for understanding approach. Both groups were focused on the sport of soccer. Each grade was required to participate in the two different modes of activity. The seventh grade was given the traditional PE class, and the eighth grade was given TGFU in the first two weeks of the study, and in the second two weeks, the seventh grade was given TGFU, and the eighth grade was given the traditional PE class in a total of four weeks study. Both grades were engaged in soccer for 45 minutes over 20 lessons (10 traditional PE classes and 10 PE classes using the TGFU approach) Order effects were controlled by having each grade do the two models in opposing order. The classroom teachers lead the introduction for each session. The 7th grade had the TGFU for two weeks then the traditional PE, then the 8th grade had the traditional PE then TGFU. The investigator saw the instructors on some times to

notify them completely of the possibility and the instrument of the study. The researcher observed all teaching episodes to verify fidelity of instruction.

The Physical Activity Enjoyment Scale was administered at the end of each two weeks of the study in order to determine if there were any differences in enjoyment level perceived by the students as they were taught using the two different curricular models. At the conclusion of the study, all the participants received At the end of the study the students were debriefed about the conditions of the study in which they had participated..

Teaching Games for Understanding (TGfU) using Soccer Sessions

Soccer sessions were conducted in the schools' gym. Prior to class all equipment necessary for instructional purposes was set up to maximize time allotted for instruction. The teacher encouraged students to participate fully for the entire lesson. As by the model, sufficient time was allotted to engage in small-sided games, so that there would be at minimum 20 minutes of actively engaged movement time. The teacher instructed and motivated the students to remain engaged in the learning tasks throughout the entire lesson.

To answer the research question, the researcher used the following procedure:

- 1- The survey of the study and all the letters that were sent to the participants were translated into Arabic, by contract with the CANTranslate center in Kuwait.
- 2- Permission was received from the Seraj Al Moneer School for the activities necessary to undertake the study.
- 3- The study was carried out in Kuwait during the regular academic year (In the fall semester 2012).
- 4- Enjoyment was measured after the study, besides measuring GPAI after the study.

Data Analysis

The data were analyzed using IBM SPSS Statistics 20. Participants' overall enjoyment scores were computed by averaging their responses on the 16 items of Physical Activity Enjoyment Scale for each of the grade and treatment combinations. Similarly their overall GPAI scores were also obtained by averaging responses on the three items GPAI. Descriptive statistics (i.e., means, standard deviations, skewness and kurtosis values) were calculated for the enjoyment and performance scores and used to investigate important characteristics of the measures.

Two way (Treatment \times Grade) repeated measures analysis of variance (ANOVA) were performed for both enjoyment and performance scores to investigate their patterns of variations across the levels of grade and treatment. One way repeated measure ANOVA models were also used to assess variations of the enjoyment and performance scores across the treatment levels only after taking out the factor grade. Paired t-tests were conducted to see if the enjoyment and performance scores vary across treatment and grade levels combinations. The correlations between the enjoyment and performance scores were also examined for different experimental combinations.

SPSS software was utilized for data analysis. The level of significance were set at $\alpha = .05$. The first research question asked about the impact on game play behavior might occur based on the curricular model implemented (traditional r PE class or PE class using teaching game for understanding approach Soccer) of ten days each. The dependent variable (scores arrived at from the GPAI) were assessed at the end of each ten days treatment period, for a total of two trials.

Secondly, the study addressed if students level of enjoyment varied based on the curricular model employed. The Physical Activity Enjoyment Scale derived this second dependent variable -enjoyment. Post-intervention means were reported for each of the curricular conditions. A three-way factorial analysis of variance (ANOVA) was performed with one between factor of grade level (9, seven or eight) and the two within-group factors (trial and treatment). The three-way ANOVA interaction was tested first. If the interaction test of the ANOVA is significant, simple effect ANOVAs will be performed. If the interaction test of the ANOVA is not significant, lower level interactions will be tested in a similar fashion.

CHAPTER IV

RESULTS

Descriptive Analysis

At the beginning of statistical analyses the descriptive statistics such as mean, standard deviation, skewness and kurtosis of the enjoyment and performance scores for different treatment and grade levels combinations are examined. The descriptive statistics for all participants combined over grade levels are also computed. The descriptive statistics are presented in Table 1. The measures of means and standard deviations provide the idea of centrality and dispersions in the distributions of the enjoyment and performance measures. The measures presented in Table 1 show that the grade 7 participants perceived higher average enjoyment score when the treatment was TGfU (Mean = 3.50; SD = 0.85) than with the treatment traditional PE (Mean = 3.15; SD = 0.46). The same participants also perceived higher average performance score for treatment TGfU (Mean = 3.53; SD = 0.73) than with the treatment traditional PE (Mean = 2.76; SD = 0.67). The reverse patterns are observed for the grade 8 participants. The grade 8 participants perceived a little higher average enjoyment score (Mean = 3.49; SD = 0.82) with traditional PE than with TGfU (Mean = 3.45; SD = 0.82) and a higher average performance score (Mean = 3.80; SD = 0.73) than TGfU (Mean = 2.93; SD = 0.58). When the descriptive measures are computed for all participants irrespective of their grades, higher average enjoyment and performance scores are obtained for traditional PE than TGfU.

The measures of skewness and kurtosis provide the information regarding the shape of the distribution of scores and help to determine normality in distributions of the

scores. Meeting the assumption of normality in distribution is very crucial for validity of interpretations drawn from most of the parametric statistical analysis methods.

Consequently the normality assumption in distributions of the scores under study is necessary to be met.

Table 1

Descriptive statistics of enjoyment and performance scores

Grade	Treatment	Statistics	Physical Activities Enjoyment	Game Performance
Grade 7	Traditional PE	N	15	15
		Mean	3.15	2.76
		Std. Deviation	.46	.67
		Skewness	1.15	1.21
		Kurtosis	1.11	1.42
	TGfU	N	15	15
		Mean	3.50	3.53
		Std. Deviation	.85	.73
		Skewness	.33	.50
		Kurtosis	.23	-.10
Grade 8	Traditional PE	N	15	15
		Mean	3.49	3.80
		Std. Deviation	.82	.73
		Skewness	.28	-.12
		Kurtosis	-.51	-.01
	TGfU	N	15	15
		Mean	3.45	2.93
		Std. Deviation	.82	.58
		Skewness	.45	.26
		Kurtosis	-.73	-.77
Overall	Traditional PE	N	30	30
		Mean	3.32	3.28
		Std. Deviation	.67	.87
		Skewness	.78	.32
		Kurtosis	.32	-.85
	TGfU	N	30	30
		Mean	3.48	3.23
		Std. Deviation	.82	.72
		Skewness	.37	.55

Kurtosis	-.40	.13
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The normality of the observed variables are tested, following the rules of thumb suggested by West et al. (1995): for a sample size of 200 or less, moderately non-normal data (univariate skewness < 2 , univariate kurtosis < 7) are acceptable, i.e. the robust standard errors provide generally accurate estimates. The descriptive statistics summarized in Table 1 present that in our data, the univariate skewness of enjoyment and performance scores for all treatment and grade combinations are ≤ 1.21 in absolute value and the univariate kurtosis are ≤ 1.42 in absolute value. Thus, the assumption of normality in the scores is met.

Main Analysis

Two way (Treatment \times Grade) repeated measures ANOVA is conducted to study the variations of enjoyment and performance scores across treatments and grade levels.

Table 2 presents the two way repeated measures ANOVA results for enjoyment scores.

Table 2

Results of two-way (Treatment \times Grade) repeated measures ANOVA model for physical activity enjoyment scores

Source	Sum of Squares	df	Mean Square	F	p- value	Partial Eta Squared
Grade	0.31	1	0.31	0.43	0.53	0.03
Error (Grade)	10.19	14	0.73			
Treatment	0.35	1	0.35	0.56	0.47	0.04
Error (Treatment)	8.63	14	0.62			
Grade * Treatment	0.56	1	0.56	0.98	0.34	0.07
Error (Grade*Treatment)	8.07	14	0.58			

The two-way repeated measures ANOVA results in Table 2 find that the main effects and interaction effect are statistically insignificant. Participants' physical activity enjoyment scores do not vary significantly with their grade levels ($F(1, 14) = 0.43$; $p\text{-value} > 0.10$; Eta squared = 0.03). Similarly, the treatment type also do not have any significant effect on the enjoyment scores of the participants ($F(1, 14) = 0.35$; $p\text{-value} > 0.10$; Eta squared = 0.04). Finally the two factors, grade level and treatment type do not interact significantly to determine the enjoyment scores of the study participants ($F(1, 14) = 0.56$; $p\text{-value} > 0.10$; Eta squared = 0.07).

The two way (Treatment \times Grade) repeated measures ANOVA results for game performance assessment scores are portrayed in Table 3. These results reveal that the factor grade levels do not have any significant effect on performance scores of the participants ($F(1, 14) = 0.94$; $p\text{-value} > 0.10$; Eta squared = 0.06) and also that the treatment type is not influenced significantly by the participants' performance scores ($F(1, 14) = 0.14$; $p\text{-value} > 0.10$; Eta squared = 0.01). One interesting finding from results in Table 3 is that the interaction effect of the two factors, grade levels and treatment types, is statistically significant with very large effect size ($F(1, 14) = 63.15$; $p\text{-value} < 0.001$; Eta squared = 0.82).

Table 3

Results of two-way (Treatment \times Grade) repeated measures ANOVA model for game performance assessment scores.

Source	Sum of Squares	df	Mean Square	F	p- value	Partial Eta Squared
Grade	0.74	1	0.74	0.94	0.35	0.06
Error (Grade)	10.98	14	0.78			
Treatment	0.03	1	0.03	0.14	0.71	0.01
Error (Treatment)	2.92	14	0.21			

Grade * Treatment	10.14	1	10.14	63.15	0.00	0.82
Error (Grade*Treatment)	2.25	14	0.16			

The significant interaction indicates that treatment types have different effects for participants of grade 7 and for participants of grade 8 on their performance scores. The descriptive statistics in Table 1 and the interaction plot in Figure 1 make the matter much clear. Looking at the descriptive measures (means) in Table 1 and at the interaction plot in Figure 1, it is clear that the participants from grade 7 perceived significantly higher average performance score with TGfU than traditional PE. The finding is reversed for grade 8 participants. The grade 8 participants perceived significantly higher average performance score with traditional PE than TGfU.

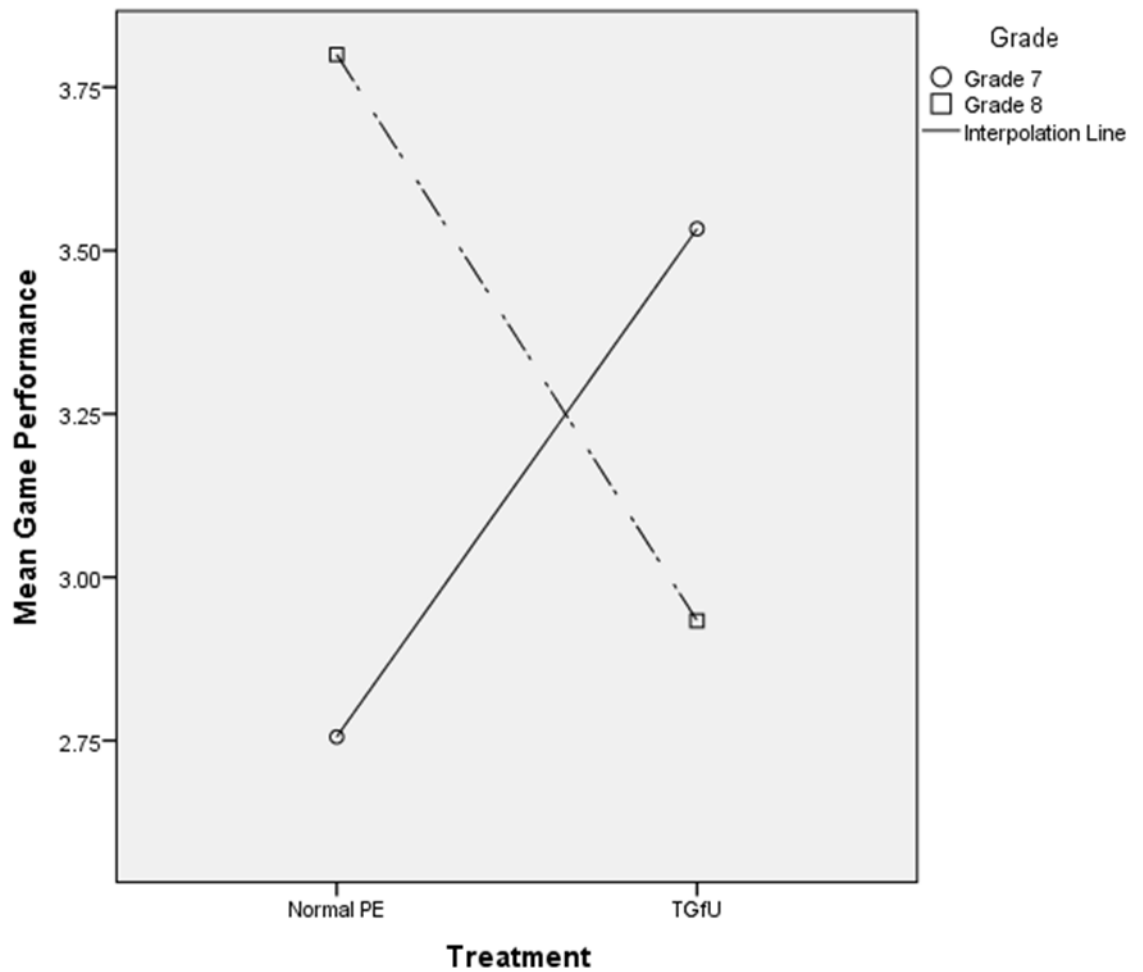


Figure 1: Interaction plot of grade levels and treatment types on game performance assessment scores of the participants.

This research also has studied the variations in physical activity enjoyment and game performance scores across the treatment types only after taking out the factor grade level. One way (Treatment) repeated measures ANOVA models are utilized for this purpose. Table 4 presents the results from one way repeated measures ANOVA for both enjoyment and performance scores. The results show that none of the enjoyment ($F(1, 29) = 0.58$; $p\text{-value} > 0.10$; Eta squared = 0.02) and performance ($F(1, 29) = 0.06$; $p\text{-value}$

> 0.10; Eta squared = 0.002) measures is significantly influenced by the types of treatment when the factor grade is taken out.

Table 4

Results of one way (Treatment) repeated measures ANOVA model for physical activities enjoyment and game performance assessment scores.

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Physical activities enjoyment						
Treatment	.35	1	.35	0.58	0.45	0.02
Error (Treatment)	17.26	29	.55			
Game performance						
Treatment	.030	1	.030	0.06	0.81	0.002
Error (Treatment)	15.304	29	.528			

Table 5

Results of paired t-tests for difference in physical activities enjoyment and game performance assessment scores (treatment x grade).

Grade	Measurements	Mean Difference	t statistic	df	p- value
Grade 7	Enjoyment Traditional PE - Enjoyment TGfU	-0.35	-1.59	14	0.13
	Performance Traditional PE - Performance TGfU	-0.78	-5.69	14	0.00
Grade 8	Enjoyment Traditional PE - Enjoyment TGfU	0.04	0.13	14	0.90
	Performance Traditional PE - Performance TGfU	0.86	4.96	14	0.00
All	Enjoyment Traditional PE - Enjoyment TGfU	-0.15	0.20	29	0.45
	Performance Traditional PE - Performance TGfU	0.04	0.19	29	0.81

The differences between enjoyment and performance scores perceived by the participants from two different treatments are tested for significance to investigate if the treatments differ in these measures. These comparisons are examined for each of the grade levels separately as well as combining the two grades. The paired t-test results are

reported in Table 5. The results in Table 5 demonstrate that for grade 7 participants the performance scores are significantly improved with TGfU ($t(14) = -5.69$; $p\text{-value} < 0.001$) and for grade 8 participants the performance scores is decreased significantly with TGfU ($t(14) = 4.96$; $p\text{-value} < 0.001$). These findings show evidences supporting the significant interaction effect of grade levels and treatment types on performance scores (reported in Table 3). All other comparisons in Table 5 yield statistically insignificant differences between the scores from two treatment types.

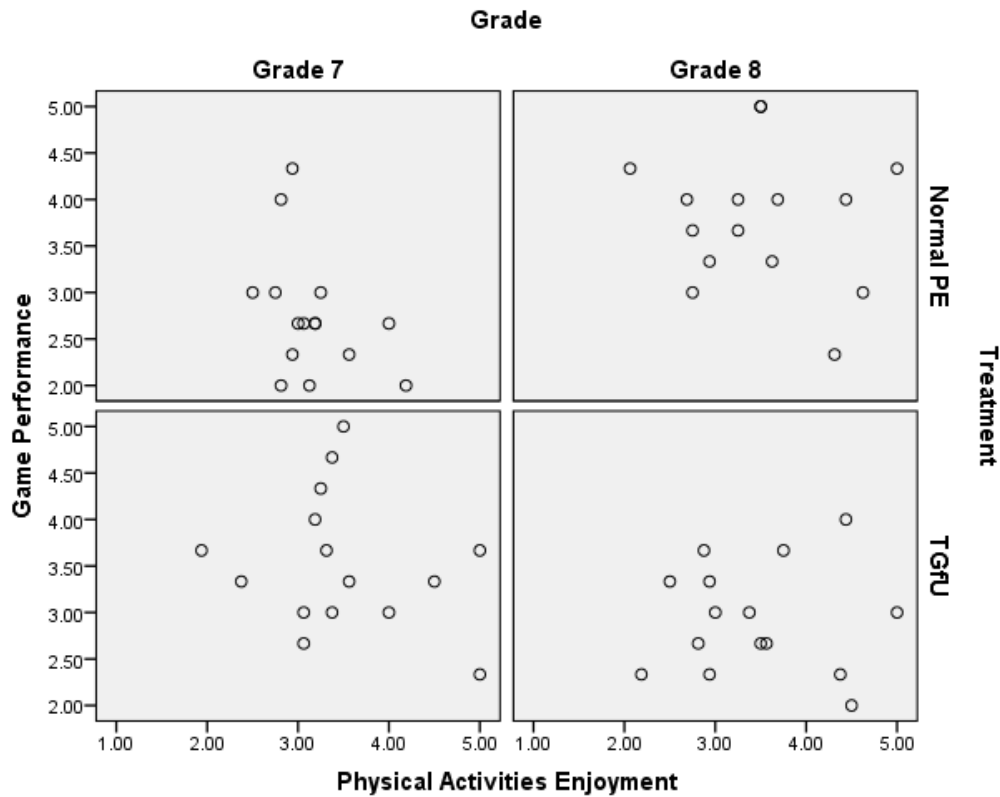


Figure 2: Scatter diagrams of physical activity enjoyment scores and game performance scores for different combinations of grade levels and treatment types.

As a final step of statistical analysis, the relationships between physical activities enjoyment and game performance measures for different combinations of grade levels

and treatment types are studied. Scatter diagrams in Figure 2 and the computed correlation coefficients reported in Table 6 are used in such investigation.

Table 6

Correlation between physical activities enjoyment and game performance assessment scores

(treatment x grade)

Grade	Treatment	N	Correlation	p-value
Grade 7	Traditional PE	15	-0.38	0.16
	TGfU	15	-0.22	0.44
Grade 8	Traditional PE	15	-0.13	0.64
	TGfU	15	-0.00	0.99

The scatter diagrams in Figure 2 and the correlation values in Table 6 for all combinations of grade levels and treatment types suggest that no statistically significant correlation is found. The estimated sample correlations coefficients are all negative though none is statistically significant.

CHAPTER IV

DISCUSSION

The statistical analyses of the collected data have covered a range of examination to examine likely impacts of the issues grade levels and behavior kinds on the observed physical activities enjoyment and game performance measures of the study observers. The statistical analyses have established that the issues grade levels and behavior kinds have no insignificant main effects on any of the enjoyment and performance measures. Communication of grade levels and behavior kinds is established to have significant effect on game performance measures. It is set up that the observers from grade 7 observed meaningfully upper usual performance score with TGfU than traditional PE. The result is upturned for grade 8 observers. The grade 8 observers observed meaningfully upper usual performance score with traditional PE than TGfU. Additional analyses have delivered proofs assistant the results of important communication of grade levels and behavior kinds. The analysis institutes no statistically important correlation among observers' enjoyment and performance measures.

The general aims of this study were to limit whether GPAI scores will develop over the two week intercession and in one four week study; and relate levels of enjoyment built on instructional delivery methods traditional PE class and PE class by teaching game for understanding. The seventh grade was given the traditional PE class, and the eighth grade was given TGFU in the first two weeks of the study, and in the second two weeks, the seventh grade class was given TGFU, and the eighth grade class was given traditional PE class in a total of four weeks study. Every collection stayed involved in both of these activities for 45 minutes for a total of 20 lessons.

Can students' learning levels recover built on the distribution of some or completely of these items? Specially, does playing adequately raise the learners' learning? Can physical educators use play as an active plan now their program to raise learners' involvement? Unique hopes that the outcomes of this education determination donate to the present investigation in the physical education arena.

GPAI instrument was used to measure two different teaching scenarios (traditional PE and Teaching Games for Understanding TGfU but the order will be different for each group (one will be labeled 7 and the other 8). This remained managed previous toward the two-week involvement. The Physical Education Activity Enjoyment scale was managed to complete the Enjoyment Instrument, toward amount apparent incentive towards join besides near amount real incentive. Arithmetical investigation remained used to control some difference between the scores each of the two times completed (both within the group labeled 7 and the group labeled 8 and across the two groups each of the times)

GPAI Instrument and PAES Enjoyment Scale between Units of Instruction

One goal of this study was to define whether GPAI scores upgraded over the two week interference and in one four week study. Another goal of this study was to match levels of enjoyment built on instructional delivery methods. The measures obtained indicate that the grade seven's upper average enjoyment score was greater when the treatment was TGfU than within traditional PE. The same observers also perceived upper average performance score for treatment TGfU than with traditional PE. The reverse forms are observed for the grade eight. The grade eight perceived a slight upper average enjoyment score with traditional PE than with TGfU and an upper average performance

score than TGfU. When the descriptive measures are calculated for all observers regardless of their grades, upper average enjoyment and performance scores are took for traditional PE than TGfU.

Built upon the imaginative analyses, results shown that establish the issues grade levels and behavior kinds have no important main special effects on any of the enjoyment and performance measures. Contact of grade levels and behavior kinds is establish to have important result on game performance measures. It is established that the observers from grade seven perceived significantly upper average performance score with TGfU than traditional PE. The finding is reversed for grade eight observers. The grade eight observers perceived meaningfully upper average performance score with traditional PE than TGfU. Extra analyses have provided indications assistant the results of important communication of grade levels and behavior kinds. The analysis established no statistically important correlation among participants' enjoyment and performance measures.

There are a couple of different reasons why each grade was impacted by the two models contrarily. The students in grade eight have had more opportunities to learn soccer and have worked with the same physical education teacher longer. They wanted to just get to the end of the traditional unit where they expected to play full field soccer which is all they wanted to do anyway, consequently when they achieved this objective at the end of four weeks they had higher enjoyment scores. Conversely, the seventh graders enjoyed TGFU more because they were more willing to deviate from the regular routine because they had fewer expectations and became more motivated when the soccer game was modified with four fields and decreases in the number of players on each field.

Alsahli (2012) similarly found that students in middle school enjoyed soccer delivered with this same modification. Further, this outcome is in line with Griffin, Mitchell and Oslin (1997) who found three main reasons to abandon the traditional approach and endorse the TGfU model. They found that because children were engaged in game play that they were more motivated to participate. This increase in student motivation enhanced the development of the technical skills necessary for success. Further, this all contributed to students higher levels of enjoyment and fun in physical education. . Ultimately, the very fact that the students got to play soccer for a total of four straight weeks increased their GPAI scores (made them better players) and they had high enjoyments scores due to the high value placed on soccer by this student group.

Limitation and Strengths of the Study

There are several limits in this study that must be measured previous to showing related studies. Coming studies must report the next issues when observing impact of curriculum on middle school students' enjoyment and game performance for changed behavior grade level. The main restriction of this study was the limited sample size two classes at different grade levels but from the same school. Additional research would be advised to increase the number of classes made available from a wider variety of schools and grade levels.. As other studies longer treatment periods may yield different results and should be explored.

Another possible limitation in this study was that both groups were taught by the same instructor and the students had access to each other outside of class time. They may have interacted and discussed the difference in how soccer was delivered to them and highlight what the students might expect when they changed from one learning condition

to the other. Future investigations might practice PE instructors for all students in this activity or test the differences in enjoyment among students on PE instructors and the observer's teachers on game performance for different behavior.

Also, the time allotted by the teacher to allow the students to complete the PAES instrument may have contributed to the results negatively. The students may have felt rushed and did not complete all 16 items with enough thought to completely understand what the questions entailed. Additional studies might benefit if the scale can be found to be accurate using less items or more time ensured for proper completion. It was observed that some students did not experience the administration of the GPAI with serious intention. Had it been tied to grade expectations they may have made more effort, in the absence it really came down to how motivated they were on that particular day. Some may have competed only to beat their friends at the task while others may have been sensitive to maintaining peer relations and not showing their friends lack of skill development during game play.

The implications for physical education teachers is that student enjoyment can be maintained over sustained time within activities that they find meaningful, regardless of how administered. If TGfU is utilized the GPAI must be conducted with the serious intent being recognized by the students and not overly administered without sharing of results so students can learn from the formative assessment process. It would be very interesting to see if TGfU will help game play performance and student enjoyment in activities that are not as valued by the students.

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APPENDICES

APPENDIX A

IRB Approval
November 27, 2012
Waleed Alanzi
Don Belcher
Department of Health and Human Performance
Wa2p@mtmail.mtsu.edu Don.Belcher@mtsu.edu

Protocol Title: "Impact of Curriculum on SERAF AL-MONEER School Students' Enjoyment and TGFU Development Levels"

Protocol Number: 13-113

Dear Investigator(s),

The MTSU Institutional Review Board, or a representative of the IRB, has reviewed the research proposal identified above. The MTSU IRB or its representative has determined that the study poses minimal risk to participants and qualifies for an expedited review under the 45 CFR 46.110 Category 2, 4, and 7.

Approval is granted for one (1) year from the date of this letter for 60 participants.

According to MTSU Policy, a researcher is defined as anyone who works with data or has contact with participants. Anyone meeting this definition needs to be listed on the protocol and needs to provide a certificate of training to the Office of Compliance. If you add researchers to an approved project, please forward an updated list of researchers and their certificates of training to the Office of Compliance (c/o Emily Born, Box 134) before they begin to work on the project. Any change to the protocol must be submitted to the IRB before implementing this change.

Please note that any unanticipated harms to participants or adverse events must be reported to the Office of Compliance at (615) 494-8918.

You will need to submit an end-of-project form to the Office of Compliance upon completion of your research located on the IRB website. Complete research means that you have finished collecting and analyzing data. Should you not finish your research within the one (1) year period, you must submit a Progress Report and request a continuation prior to the expiration date. Please allow time for review and requested revisions.

Also, all research materials must be retained by the PI or faculty advisor (if the PI is a student) for at least three (3) years after study completion. Should you have any questions or need additional information, please do not hesitate to contact me.

Sincerely,

Timothy R. Graeff

Timothy R. Graeff, Ph.D.
Institutional Review Board
Middle Tennessee State University

APPENDIX B

GAME PERFORMANCE ASSESSMENT INSTRUMENT

Evaluator _____ Class _____

Game _____

Observation Dates a) _____ b) _____ c) _____ d) _____ e) _____

Levels of Performance

4 = Very Effective Performance: almost always observable

3 = Effective Performance: usually observable

2 = Moderately Effective Performance: sometimes

1 = Weak Performance: rarely

Game Components

1. Skill Execution: The student passes the ball accurately (ball reaches the intended receiver).

2. Decision Making: The student uses the correct skill at the correct time.

3. Support: student attempt to move into position to receive a pass from teammates..

Directions: Observe the selected player(s) for 3-5 minutes, observing only performance related to the above game components. After the observation period, give each player a score from 1-5 on each component.

Team/Players	Skill Execution	Decision Making	support

APPENDIX C

Physical Activity Enjoyment Scale (Pretest)

Type of Activity:	Disagree A lot	Disagree	Do not Agree or Disagree	Agree	Agree A lot
1. When I will be active in this activity, I will enjoy it.	<input type="text"/> 1	<input type="text"/> 2	<input type="text"/> 3	<input type="text"/> 4	<input type="text"/> 5
2. When I will be active in this activity, I will feel bored.	<input type="text"/> 1	<input type="text"/> 2	<input type="text"/> 3	<input type="text"/> 4	<input type="text"/> 5
3. When I will be active in this activity, I will dislike it.	<input type="text"/> 1	<input type="text"/> 2	<input type="text"/> 3	<input type="text"/> 4	<input type="text"/> 5
4. When I will be active in this activity, I will found it pleasurable.	<input type="text"/> 1	<input type="text"/> 2	<input type="text"/> 3	<input type="text"/> 4	<input type="text"/> 5
5. When I will be active in this activity, it will not be fun at all.	<input type="text"/> 1	<input type="text"/> 2	<input type="text"/> 3	<input type="text"/> 4	<input type="text"/> 5
6. When I will be active in this activity, it will give me energy.	<input type="text"/> 1	<input type="text"/> 2	<input type="text"/> 3	<input type="text"/> 4	<input type="text"/> 5
7. When I will be active in this activity, it will make me sad.	<input type="text"/> 1	<input type="text"/> 2	<input type="text"/> 3	<input type="text"/> 4	<input type="text"/> 5
8. When I will be active in this activity, it will very pleasant.	<input type="text"/> 1	<input type="text"/> 2	<input type="text"/> 3	<input type="text"/> 4	<input type="text"/> 5
9. When I will be active in this activity, it will make my body feel good.	<input type="text"/> 1	<input type="text"/> 2	<input type="text"/> 3	<input type="text"/> 4	<input type="text"/> 5
10. When I will be active in this activity, I will get something out of it.	<input type="text"/> 1	<input type="text"/> 2	<input type="text"/> 3	<input type="text"/> 4	<input type="text"/> 5
11. When I will be active in this activity, it will be very exciting.	<input type="text"/> 1	<input type="text"/> 2	<input type="text"/> 3	<input type="text"/> 4	<input type="text"/> 5
12. When I will be active in this activity, it will frustrate me.	<input type="text"/> 1	<input type="text"/> 2	<input type="text"/> 3	<input type="text"/> 4	<input type="text"/> 5
13. When I will be active in this activity, it will not be at all interesting.	<input type="text"/> 1	<input type="text"/> 2	<input type="text"/> 3	<input type="text"/> 4	<input type="text"/> 5
14. When I will be active in this activity, it will make me feel successful.	<input type="text"/> 1	<input type="text"/> 2	<input type="text"/> 3	<input type="text"/> 4	<input type="text"/> 5
15. When I will be active in this activity, I will feel good.	<input type="text"/> 1	<input type="text"/> 2	<input type="text"/> 3	<input type="text"/> 4	<input type="text"/> 5
16. When I will be active in this activity, I will feel like I would rather be doing something else.	<input type="text"/> 1	<input type="text"/> 2	<input type="text"/> 3	<input type="text"/> 4	<input type="text"/> 5

Adapted from: Motl, Dishman, Saunders, Dowda, Felton, and Pate (2001) Measuring enjoyment of

physical activity in adolescent girls, American Journal of Preventive Medicine, 21, 2, 110-117,

Physical Activity Enjoyment Scale (Posttest)

Type of Activity:	Disagree A lot	Disagree	Do not Agree or Disagree	Agree	Agree A lot
1. When I was active in this activity, I enjoyed it.	<input type="text"/> 1	<input type="text"/> 2	<input type="text"/> 3	<input type="text"/> 4	<input type="text"/> 5
2. When I was active in this activity, I felt bored.	<input type="text"/> 1	<input type="text"/> 2	<input type="text"/> 3	<input type="text"/> 4	<input type="text"/> 5
3. When I was active in this activity, I disliked it.	<input type="text"/> 1	<input type="text"/> 2	<input type="text"/> 3	<input type="text"/> 4	<input type="text"/> 5
4. When I was active in this activity, I found it pleasurable.	<input type="text"/> 1	<input type="text"/> 2	<input type="text"/> 3	<input type="text"/> 4	<input type="text"/> 5
5. When I was active in this activity, it was not fun at all.	<input type="text"/> 1	<input type="text"/> 2	<input type="text"/> 3	<input type="text"/> 4	<input type="text"/> 5
6. When I was active in this activity, it gave me energy.	<input type="text"/> 1	<input type="text"/> 2	<input type="text"/> 3	<input type="text"/> 4	<input type="text"/> 5
7. When I was active in this activity, it made me sad.	<input type="text"/> 1	<input type="text"/> 2	<input type="text"/> 3	<input type="text"/> 4	<input type="text"/> 5
8. When I was active in this activity, it was very pleasant.	<input type="text"/> 1	<input type="text"/> 2	<input type="text"/> 3	<input type="text"/> 4	<input type="text"/> 5
9. When I was active in this activity, it made my body feel good.	<input type="text"/> 1	<input type="text"/> 2	<input type="text"/> 3	<input type="text"/> 4	<input type="text"/> 5
10. When I was active in this activity, I got something out of it.	<input type="text"/> 1	<input type="text"/> 2	<input type="text"/> 3	<input type="text"/> 4	<input type="text"/> 5
11. When I was active in this activity, it was very exciting.	<input type="text"/> 1	<input type="text"/> 2	<input type="text"/> 3	<input type="text"/> 4	<input type="text"/> 5
12. When I was active in this activity, it frustrated me.	<input type="text"/> 1	<input type="text"/> 2	<input type="text"/> 3	<input type="text"/> 4	<input type="text"/> 5
13. When I was active in this activity, it was not at all interesting.	<input type="text"/> 1	<input type="text"/> 2	<input type="text"/> 3	<input type="text"/> 4	<input type="text"/> 5
14. When I was active in this activity, it made me feel successful.	<input type="text"/> 1	<input type="text"/> 2	<input type="text"/> 3	<input type="text"/> 4	<input type="text"/> 5
15. When I was active in this activity, I felt good.	<input type="text"/> 1	<input type="text"/> 2	<input type="text"/> 3	<input type="text"/> 4	<input type="text"/> 5
16. When I was active in this activity, I felt like I would rather be doing something else.	<input type="text"/> 1	<input type="text"/> 2	<input type="text"/> 3	<input type="text"/> 4	<input type="text"/> 5

Adapted from: Motl, Dishman, Saunders, Dowda, Felton, and Pate (2001) Measuring enjoyment of

physical activity in adolescent girls, American Journal of Preventive Medicine, 21, 2, 110-117,