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The reliability of the New York Statewide Assessment Rubric for Badminton at the Commencement Level when used by a Master-Teacher, a Student-Teacher, and Peer.

by

David Alan Carson

August, 2003

A thesis submitted to the Department of Physical Education and Sport of the State University of New York College at Brockport in partial fulfillment of the requirements for the degree of Master of Science in Education

STATE UNIVERSITY OF NEW YORK

COLLEGE AT BROCKPORT

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DEPARTMENT OF PHYSICAL EDUCATION AND SPORT

Title of Thesis: The reliability of the New York Statewide Assessment Rubric for
Badminton at the Commencement Level when used by a Master-Teacher, a Student-
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Date: 9/15/03

Carly Houston-Welton
Chairperson, Department of
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Dedication

To my mother, Donna Jo, for her love and support throughout my life.

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Abstract

The purpose of this study was to provide physical education professionals with empirical data that supports the current literature on authentic assessment. The recent literature points out the benefits of authentic assessment: it encourages students to think and perform at a “higher level”, relates to unit and curriculum goals, and it improves teacher and student accountability. A rubric is the most widely used authentic assessment tool in physical education and peer authentic assessment is a common assessment style. The New York Statewide Rubric at the Commencement Level in Badminton was the assessment tool used in the study and the students were assessed using peer assessment. Sixteen co-ed high school physical education students were involved in the study. A master-teacher, a student-teacher, and each peer used the New York Statewide Rubric at the Commencement Level in Badminton over a four day period. The results of the master-teacher, the student-teacher, and peers were put through a reliability analysis. The final statistical results support that the New York Statewide Assessment at the Commencement Level is reliable when used by a master-teacher, a student-teacher, and peer. Specific procedures and findings are presented along with a detailed discussion which includes future directions.

Chapter 1

Introduction

In recent years there has been a growing interest in the use of authentic assessment in the physical education class. According to Doolittle (1996), prior to 1995 a majority of physical education programs have graded students using traditional assessments; such as, participation, effort, compliance, and attendance. In addition to the traditional forms of assessment, Hensley (1990) found subjective skill grading was a basis for physical educators to grade students. Matanin and Tannehill (1994) noted that subjective skill tests or performance-based assessment methods have been used for years and have tested movement patterns, sport skills, and fitness components. These types of skill tests require the student to complete a specific skill, but they lack authenticity (Heneley, 1997). This form of grading is questionable because the assessments do not relate to the objectives nor do they test the objectives in an authentic manner.

Educational Reform

According to NASPE's *Moving Into the Future: National Standards for Physical Education - A Guide to Content and Assessment* (1995), over the past ten years there has been an educational reform movement in the United States. In 1989 the National Education Goals Panel was established, which led to national standards in education. National education standards were put into law in 1994 with the passage of *Goals 2000: Educate America Act*. Shortly after that, the National Education Standards Improvement Council (NESIC) was established to work with appropriate organizations (NASPE) in an effort to develop standards directly related to what a student should "know and be able to do". In 1995 NASPE published *Moving Into the Future: National Standards for Physical Education - A Guide to Content and Assessment*. This publication provides examples of authentic assessments that are linked to national standards.

New York State joined the assessment movement within a year of NASPE. In May of 1996, the New York State Education Department devised a revised edition of the *Learning Standards for Health, Physical Education, and Home Economics*. This source of information provides teachers with examples of assessments and New York State's version of standards. In 1996, the New York State Association for Health, Physical Education, Recreation, and Dance (NYS AHPERD) published *Developing Assessments for Physical Education* a monograph of information that contains eleven articles on assessment and provides examples of authentic assessment. Two years later in 1998 NYS AHPERD hosted a Goals 2000 Workshop. This workshop focused on assessment in relation to the NYS Learning Standards, district physical education curriculums, instruction, and grading. The *Goals 2000 Workshop Participant Handbook: Physical Education and Assessment* provides additional examples of authentic assessments.

Since the 1998 Goals 2000 Workshop, NYS AAHPERD has been the voice in the field of Physical Education in New York State. They continue to strive toward statewide assessment and are aligning the New York State Learning Standards with curriculum and instruction (Fay and Doolittle, 2002). According to Fay and Doolittle (2002), physical educators look forward to the NYS AHPERD workshops because it gives them an opportunity to meet their districts' professional growth requirements. Fay and Doolittle (2002) report that field-testing on authentic assessments will determine reliability and validity; along with the impact the assessments have on the instructors and students.

According to Petersen, Cruz, and Amundson (2002) this reform in assessment has impacted program content, administrators and teachers, teacher education programs, and professional organizations. Fay and Doolittle (2002) point out that the New York

State Education Department understands what the physical education profession has accomplished and are very supportive of the reform that is still taking place.

According to Petersen, Cruz, and Amundson (2002), there has been a shift from traditional programs to current curriculum models and an increase in unit options, such as dance, yoga, in-line skating, cardio-kick-boxing, self-defense, canoeing, kayaking, and skiing. This movement has other teachers, board of education members, members in the community, and most importantly, administrators excited and supportive of the developments in physical education.

Administrators are including Physical Education as part of their educational plan for the future. As a result some physical education programs have found a decline in class size which allows them to meet the standards and offer more modern content areas. Also, districts are paying physical education teachers to write and revise curricula so that the districts' programs are inline with New York State and NASPE standards. Teachers are now taking greater pride in their jobs because they feel their students are taking the knowledge gained in physical education class and applying it to the real world (Petersen, Cruz, and Amundson 2002).

Teacher education programs have changed tremendously over the past five years. According to Petersen, Cruz, and Amundson (2002), undergraduate students are required to include the NASPE and New York Standards on each lesson plan and use authentic assessments when teaching a unit. The same students are required to teach lessons within their performance classes and new performance classes are required, such as, cooperative games and a rope course unit. Petersen, Cruz, and Amundson (2002) also pointed out the change in graduate programs. Graduate students are being trained to write grants which will buy equipment so physical education programs will be able to

teach units such as kayaking and mountain biking and have high tech equipment such as heart rate monitors.

Petersen, Cruz, and Amundson (2002) identified the impact reform assessment has had on professional organizations. Professional organizations now offer several workshops on authentic assessment and current curriculum models. These workshops are influencing a huge change in the field of physical education. It is the professional organizations that are leading the reform in physical education. The amount of members in professional organizations is increasing because physical education teachers need to keep up with the most current information in physical education.

Authentic Assessment

The primary purposes of assessment, according to Strand and Wilson (1993), is to diagnose student performance, motivate students to perform at a higher level, grade students, and predicts future performance. Strand and Wilson (1993) also noted that assessment enhances public relations; assessment results may influence curricular change, and assessment aids in evaluating programs and instructors. According to Veal (1995), assessment can be performed by teachers, students themselves, and/or their peers.

In 1995, the National Association for Sport and Physical Education developed a teacher's guide to content and assessment entitled, *Moving Into the Future: National Standards for Physical Education*, which provided national standards and examples of authentic assessments. [Radford, Schincariol, and Hughes (1995) found that] authentic assessment provides physical education programs with an assessment style which has "real world" applications. Lund (1997) noted that authentic assessment is a true representative of student performance. This is an ongoing feedback system that documents student learning. According to Joyner & McManis (1997) an example of authentic assessment is when a student is assessed on performing a volleyball bump in a natural game setting throughout the unit. This type of assessment is known as a formative

evaluation.

According to Melgrano (1994), the goals of authentic assessment are to assess the actual performance of students; hold students accountable for learning; and, concomitantly, hold the teacher accountable for teaching to the objective. Melgrano (1994) added that authentic assessment enhances motivation and informs parents, students, and teachers of student progress. Lund (1997) found authentic assessment also focuses on a “higher level” of thinking, increases student awareness to the objective because students know what is being assessed, provides a continuous process embedded in the curriculum, and improves teacher/student relationships.

Lund (1997) added that authentic assessment is used in the form of written essays, portfolios, oral discourses, exhibitions and event tasks. Essays demonstrate student knowledge and present such knowledge in a meaningful manner. According to Melgrano (1994), portfolios are a collection of the above student works over time which is effective in reporting progress to parents and enhancing student motivation. Oral discourses can be used to assess a student’s knowledge concerning the use of strategy and evaluate his/her understanding of certain concepts. Exhibitions and event tasks assess student skills and performance. Veal (1995) noted checklists and rubrics are used in this type of assessment and can be teacher-directed, peer-directed, and/or self-directed. According to Lund (1997), a rubric is a tool which outlines the level of performance for both the teacher and student. Veal (1995) reported that these skills can be product or process assessments. Product assessments are quantitative: they can be counted, measured, or timed. Process assessments are qualitative: they focus on the form of the movements.

Problem

Peer authentic assessment is considered by experts as an excellent teaching tool. Yet there is limited research that will back up the reliability of peer assessment when used by a master-teacher, student-teacher, and peer during physical education class. The existing research on peer assessment when pertaining to physical education defines peer assessment, explains why and how to use peer assessment, and notes the numerous benefits of peer assessment.

Purpose

The purpose of this study is to investigate the reliability of the New York statewide assessment at the commencement level in badminton when administered by a master-teacher, a student-teacher, and peer.

Research Hypothesis

With proper training the New York statewide assessment at the commencement level in badminton is a valid and reliable testing instrument when used by a master-teacher, student-teacher, and peer in a high school physical education badminton unit. If there is no significant difference between the master-teacher, student-teacher, and peer scores then the New York statewide assessment at the commencement level in badminton will be considered a valid and reliable testing instrument.

Definitions

1. Authentic Assessment: student performance is measured in a more natural real world setting, rather than in artificial settings found in standardized testing (Lund, 1997).
2. Formative Assessment: assess throughout an extended period of time (unit) (Doolittle, 1996).
3. Grading: a record of student achievement (Doolittle, 1996).
4. Process Assessment: focuses on form of movement (Veal, 1995).

5. Product Assessment: focuses on the outcome of movement (Veal, 1995).
6. Rubric: detailed guidelines and progressions that are used to evaluate student performance (Lund, 1997).
7. Standards: statements related to what a student should know and be able to perform (Hensley, 1997).
8. Summative: assess at the end of a period of time (unit) (Doolittle, 1996).
9. Traditional Assessment: students are graded on attendance, participation, changing, attitude, and subjective skill grading (Doolittle, 1996).

Operational Definitions

1. Master-Teacher: In this case the master-teacher is in his fifth year of teaching co-ed high school physical education at a public school. The master-teacher uses a variety of teaching styles and assessments to improve student performance. Since receiving tenure two years ago, he has been a mentor-teacher for student- teachers and undergraduate students who are taking secondary methods. The master-teacher planned the unit that was studied and trained the student-teacher on how to use the New York statewide assessment at the commencement level in badminton.
2. New York Statewide Assessment at the Commencement Level in Badminton: This assessment is one of the many that the New York State Education Department has made available to teachers. The assessments relate to the New York State Learning Standards and are available for many activities at the three levels; elementary, intermediate, and commencement. This specific assessment has four different rubrics: application of skills, application of strategy, application of rules and conventions, and personal and social responsibility. The master-teacher, student-teacher, and peers all used this assessment during the study.
3. Peer Assessor: These are the sixteen students in the master-teacher's class that are involved in the study using the New York statewide assessment at the

commencement level for badminton. This was a co-ed class with students in ninth thru eleventh grade. Each peer was responsible for assessing the same peer throughout the four classes.

4. Student-Teacher: At the beginning of the study the student-teacher was in his final two weeks of his eight week student-teaching experience in the high school. Two weeks prior to the start of the study the student-teacher acquired 90% of the teaching responsibilities for this class. The student-teacher was trained by the master-teacher on how to use the New York Statewide Assessment at the Commencement Level in Badminton and present it to the class. The student-teacher demonstrated knowledge of a variety of teaching styles and assessments. He was well planned and related the NASPE and New York State Learning Standards to each of his lessons. Prior to his first student teaching experience he successfully completed the State University of New York College at Brockport's rigorous undergraduate physical education curriculum.

Assumptions

The following assumptions are made in this study:

1. The student-teacher will provide the students with the basic skills needed to be successful in badminton.
2. Each child will participate to the best of his or her ability.
3. The student-teacher will be clear in providing directions that students understand throughout the unit.
4. The students will be trained on how to properly use the peer authentic assessment.

Limitations

The following are limitations in the study:

1. The class size may change daily because of absenteeism.
2. The research is only being done during a badminton unit.

3. The master-teacher served as the expert and no intra-rater reliability was established.

Delimitations

The following are delimitations:

1. The two students that attend class every other day and the students who are not in the group being tested will have to perform in place of the absent student.
2. The student that was absent will have to observe his/her partner by video.
3. The master-teacher will have to observe all students and assess them by video.

Chapter 2

Review of Literature

The purpose of this chapter is to present a review of literature on authentic assessment, specifically, peer assessment. The definition and characteristics of authentic assessment, authentic assessment rubrics, and concerns with authentic assessment will be reported.

Authentic Assessment

Defined and Characteristics

As previously stated by Radford, Schincariol, and Hughes (1995), authentic assessment is an assessment that takes place in a “real-life” setting. For example, the badminton serve would be assessed during the game, not in a contrived setting. The more similar the assessment is to a “real-life” setting, the more authentic it is. According to Hensely (1997), an appropriate authentic assessment needs to consider context and performance. For example, during a badminton skills test a student should be tested on the use of the appropriate type of shot with proper form during a game. This is much different from having a shuttle cock tossed to the student and returned using the assigned type of shot. This gives the students an opportunity to demonstrate their abilities in a real game, thus eliminating the pressure of a standardized test.

Lund (1997) reported authentic assessment also allows students to think at higher levels. Students are tested on how well they use the knowledge learned, not on how well they can memorize facts. For example, a teacher can assess a student’s understanding of the rules of badminton during the several situations that occur during a game. Lund (1997) noted that this form of assessment keeps the student thinking and reacting to every situation, as opposed to the type of static assessment involved with for instance a multiple choice test on the rules of badminton.

According to Lund (1997), when using authentic assessment students know

exactly what is being asked of them and are continually challenged to achieve at a higher level. The assessment is directly related to unit objectives, and they are clearly laid out for the students. The assessment often takes the form of a rubric and can be assessed by the student performing the skill, a peer, and/or the teacher.

Lund (1997) described another characteristic of authentic assessment as an ongoing formative evaluation throughout the unit. Authentic assessment is not separate from instruction; it is actually part of daily class instruction. An example of this would be when students continually work on and are aware of the mechanics of the badminton serve throughout the unit. This is much different from having a one time serve test at the end of the unit or summative evaluation.

Authentic assessment increases the level of student interest in the unit objectives because students are challenged to improve their performance level throughout the unit (Lund 1997). This environment lends itself to a positive image for the teacher. Lund (1997) noted that teachers who use authentic assessment interact with each student thus giving each student a greater sense of belonging. Evaluating each student fairly does not always occur in a traditional assessment setting.

Meisels, Dichtelmiller, Dorfman, Jablon, and Marsden (1993) noted that authentic assessments can be used throughout all grade levels. Performance rubrics at each level aid in defining and reevaluating the K - 12 curriculum. The rubrics make sure there is a consistent level of progression as a student moves on to another grade level. Authentic assessments also can be used to assess a wide range of abilities and behaviors in all three domains: cognitive, psychomotor, and affective (Meisels, et al., 1993).

Types of Authentic Assessment

Rubrics

According to Rikard and Lancaster (1999) a rubric is the most popular and widely used assessment tool in the assessment reform. The rubric will increase teacher accountability and student performance in physical education. A rubric is a rating scale and list of criteria for judging a student's performance. A rubric carefully lays out the details of each progression or step to achieve a higher level of performance. Smith (1997) added that most rubrics contain three to five steps or performance levels. There are two types of scoring rubrics.

The first type is an analytic rubric. Hensley (1997) noted that an analytic rubric is used to assess a specific skill of a student, but does not indicate the student's overall ability to perform in a game. For example, an analytic rubric used in a badminton unit would assess a student's ability to perform a forehand clear shot during a drill, practice, or game play. Lund (1997) added that an analytic rubric is an excellent tool used to improve a specific skill. The student knows exactly what is expected of him/her and is able to self-evaluate the skill and improve his or her performance.

The second type of rubric is a holistic rubric. According to Hensley (1997), a holistic rubric assesses the overall quality of a game. It requires a student to understand cognitive aspects of the whole game and be able to perform a number of skills in a game. For example, a holistic rubric used in a badminton unit would assess a student's ability to perform a variety of shots and have an understanding of the rules and strategies in badminton. Using a holistic rubric is easier and faster than performing a number of analytic rubrics for each skill. Hensley (1997) advised physical education teachers to use more holistic assessments in their classes.

Peer Assessment

According to Kaardal (2001), peer assessment requires that students understand the essential components of the skill, be able to evaluate their partners, and then communicate their observations to their partners. The idea of peer assessment forces students to focus on skill demonstration, be able to breakdown the skill, communicate their knowledge and evaluate their peers (Kaardal, 2001). Kaardal (2001) noted that peer assessment also clarifies each student's expectations of his/herself, thus making it easier to perform the skill successfully. Melgrano (1996 and 1997) noted that large class sizes and a limited amount of time makes peer assessment a great fit in today's physical education programs because peer assessment can be performed in small groups when students are engaged in various activities. Block (1994) noted an additional benefit of peer assessment: this learning style places students in a much more comfortable environment and reduces the chance of embarrassment.

According to Kaardal (2001), there are a number of crucial steps in preparing students to use peer assessment. First, the students need to be exposed to appropriate demonstrations of the skill. Appropriate demonstrations can be performed in the class or on video by the teacher, a student, professional or amateur athlete, or any other person that can perform the skill correctly. Secondly, the student needs to know cues to give his/her peer so performance can be improved. For example, a common mistake in shooting a foul shot in basketball is not having enough arc on the flight of the ball. A peer needs to recognize this and offer suggestions, such as, bend the knees and push the ball up in the air not out in front of the body. Lastly, students need to know how to use the assessment. They need to know what component is being observed and how to score the result. Kaardal (2001) added that the teacher plays a vital role in the success of peer assessment. The teacher must constantly move around to assist students and offer suggestions to the entire class when needed. According to Ferrara, Goldberg, & McTighe

(1995), teachers must take into account the individual students ability and maturity when the student attempts to perform, evaluate, and provide feedback about the task to his/her peer. Melgrano (1997) noted peer assessment will also enhance the student's ability to work as a group member because he/she has to communicate, to assist, to share responsibilities, and to trust his/her peers.

Although there is some research on peer assessment it is rather limited when pertaining to high school physical education. Hill and Miller (1997) performed research that used fifth grade students assessing fitness performance. The results were positive showing that with proper training peer assessment can be used. Helton (1994) reported a similar conclusion that peer assessment was better than self-assessment when performed by eighth grade students. There is additional evidence supporting the effectiveness of peer assessment in higher education (Keaten & Richardson, 1993; Pond & Ul-Haq, 1997).

The only research on high school physical education of peer assessment is a case study by Butler & Hodge (2001) which examined the amount of feedback provided to a student's peer, the importance of the feedback given, and the importance of developing trust during peer assessment. The results were consistent with the rest of the peer assessment research in that peer assessment has proven to be an excellent instructional tool if used properly. In the Butler & Hodge (2001) case study 79.2% of the peers provided feedback, 91.7% of the students felt it was important to give feedback, 87.5% said they trusted their peer when they were giving feedback, and 91.7% students believed that developing trust in their peer ought to occur to promote learning. Butler & Hodge (2001) offered several recommendations: teachers need to be well planned when using peer assessment; they need to be creative in demonstration; brief in explanation, and able to modify the lesson; and peer assessment should be used throughout the entire school year.

Concerns with Authentic Assessment

Lund (1997) noted that there are concerns with the validity, reliability, and objectivity of authentic assessments. If authentic assessments are going to be used then physical educators need to make sure the assessments are as valid, reliable, and objective as they can be. According to Elliot (1995), there are several requisites to ensuring valid and reliable authentic assessment in physical education. The first is to relate the assessment to the objectives taught in class. Secondly, the scoring system needs to be clearly stated. Lastly align the unit objectives with the school curriculum.

According to Joyner and McManis (1997), validity in relation to alternative assessment is the accuracy of the findings of the assessment results. According to Baker, Oneill, and Linn (1993), a valid alternative assessment will have some basic characteristics. First, the components in the assessment must have meaning to the teacher and student. For example, in a badminton unit, assessing the clear shot is important because it is a major part of the game. Secondly, the student would have to demonstrate complex cognitive and psychomotor skills. The rubric should consist of a variety of shots, rules, and strategies. Third, the student needs to be assessed on the important skills of a game, not the minor irrelevant points. Lastly, the rubric must be clearly defined and contain standards for rating the student.

According to Dunbar, Koretz, and Hoover (1991), in relationship to alternative assessment, reliability is thought of as an agreement of the raters; this is also known as objectivity. Joyner and McManis (1997) maintained that to improve objectivity, a detailed rubric is needed along with trained raters. The physical education teacher should explain the steps of the rubric and demonstrate each step and how it is rated. Then he or she should have each student score some performances of a skill and compare the results with the rest of the class. At the very least, this exercise will give the students a greater understanding of the rubric and what is expected of them. On the other hand reliability of

alternative assessment is concerned with the consistency of measurement each time the assessment is used (Dunbar et al.,1991). To improve reliability of an assessment the number of tasks involved need to be limited to the important skills.

Summary

The assessment reform in physical education has lead to many changes in professional organizations, K-12 physical education programs, physical education programs in higher education; it has improved student performance, and provided teachers with greater accountability in the classroom and an increased level of respect from peers. As mentioned above authentic assessment takes place in a “real-life” setting, encourages students to think at a “higher level”, relates to unit objectives, and through the use of rubrics, authentic assessment is an ongoing process that challenges students to perform at a higher level. Also, as previously mentioned, peer assessment is an excellent way to include authentic assessment in a physical education unit. Peer assessment increases the level of focus on a skill, forces students to communicate, and provides students with clear expectations. The environment in peer assessment is student friendly, and it also allows the teacher to have each student assessed. NASPE, NYS AHPERD, AAHPERD, and several other private and public organizations are in the business of improving student performance, and they believe the use of authentic assessment will help students perform at a higher level. Substantial research is not yet available on the pedagogical effectiveness of authentic assessment and peer assessment. This study will attempt to support the theory that peer authentic assessment is an effective and reliable instructional tool.

Chapter 3

Methods and Procedures

The purpose of this chapter is to present the methods and procedures that were used to determine the reliability of the New York statewide assessment at the commencement level for badminton when assessed by a master-teacher, student-teacher, and peer in a high school badminton unit. The following topics will be reviewed, the selection of subjects, informed consent information, description of the instrument used in the study, procedures, and data analysis.

Selection of Subjects

The subjects used in this research study were students enrolled in a regular physical education class at Albion Central School for the 2002-03 school year. Albion Central School is a Level four High Needs Rural District. This class was a group of co-ed 9th through 11th graders that had mixed abilities. Sixteen students were involved in the study. The students were randomly selected to be in the master teacher's physical education class by the guidance department the previous school year. The procedure for the guidance department when scheduling a student for the 2003-2003 school year was to randomly place a student into a physical education class that coincides with the rest of the student's academic schedule. The guidance department balanced the class sizes so that each teacher had the same number of students. Prior to the study, sixteen students had a minimal amount of experience in authentic assessment; they had zero to a small amount of experience in the sport of badminton; and no formal experiences involving peer assessment in a physical education class. See Appendix E for the class roster.

Another subject in this study was the master-teacher. Prior to the study the master-teacher had completed over four years of teaching physical education at the high school level and is in the process of completing his master's degree at the State University of New York College at Brockport. He has been a mentor teacher for college students since receiving his tenure at Albion Central School. He has used authentic assessments in physical education class and has experience with peer assessment. The master-teacher's course work as an undergraduate that related to this study included: an Intermediate Level Badminton class, Secondary Methods and Instruction, Measurement and Evaluation, and his Secondary Student Teaching experience.

In addition to the master-teacher and peers, a student-teacher was included in the study. The student-teacher proved to be well versed and knowledgeable in the field of physical education, especially in the area of assessment. All of his lesson objectives were aligned with the New York State learning standards. He was well trained during his undergraduate course study which allowed him to be able to contribute a great deal of knowledge to the research study. The student-teacher's course work as an undergraduate which related to this study included: an Intermediate Level Badminton class designed for the physical education teacher, an Introduction to Teaching Physical Education Class, Secondary Methods and Instruction, Measurement and Evaluation, and his Secondary Student Teaching experience. The State University of New York College at Brockport placed him at Albion Central School. As part of his student teaching experience he agreed to participate in the study.

Informed Consent Information

During the month of February, 2003 the master-teacher received permission from the building principal at Albion Central School and permission from the Office of Academic Affairs at SUNY College at Brockport to perform the study. Also, each student that participated in the study and parent(s) of the student involved in the study gave informed consent (see appendix A to see all informed consent information). The informed consent letter was distributed and signed by both the parent(s) and the child. All of the informed consent letters were distributed two weeks prior to the study and collected before the first day of the badminton unit. The informed consent information included: the purpose of the study, the subjects and testing instrument, an outline of the unit which included the dates and times of the study, the fact that there were not any risks, possible benefits, and contact information.

Description of Apparatus/Instruments

Each student was assessed by the master-teacher, student-teacher, and a peer using the New York statewide assessment at the commencement level for badminton. See appendix B for a copy of the New York statewide assessment at the commencement level for badminton. This assessment is one of several assessments that the New York State Education Department has made available to teachers. The assessments relate to the New York State Learning Standards and are available for many activities at the commencement. This specific assessment has four different rubrics: application of skills, application of strategy, application of rules and conventions, and personal and social responsibility. Each rubric has four levels of scoring.

Procedures

The master-teacher planned the unit and trained the student-teacher on how to use the New York statewide assessment at the commencement level for badminton (see appendix C for the block plan). Prior to the actual data collection a training program was provided to the student-teacher and peers involved in the study. Both the master-teacher and student-teacher have been trained in the area of assessment at the State University of New York College at Brockport. Over the past four years the master-teacher has attended workshops, kept up with reading current articles on assessment, and has used authentic assessments in his class. The student-teacher has had the most recent and concentrated training in assessment because assessment is an essential element in the physical education curriculum at SUNY Brockport.

The master-teacher trained the student-teacher on five separate occasions prior to the study. The first training session lasted 45 minutes and covered the basic badminton skills, rules, and strategy that were included in New York statewide assessment at the commencement level for badminton. The master-teacher demonstrated each skill and then had the student-teacher perform the skills in a drill and game setting. Most of session one, was review for the student-teacher because of his previous experiences with badminton. The most important part of session one, was when the master-teacher demonstrated the different scores of the skill, rules, and strategy rubrics. The master-teacher trained the student-teacher on what constitutes a one, two, three, or four for the skill, rules, and strategy rubrics.

During the second training session which lasted 45 minutes, the master-teacher reviewed various cues that enabled the student-teacher to breakdown skills and communicate this to the students during the badminton unit. Several cues and common mistakes by students were provided to the student-teacher during this training. For example, a common mistake for an inexperienced badminton player is not striking the shuttle cock when attempting a serve. The student-teacher was trained to give cues such

as, “bend your knees, lean over, extend the arm with that is holding the shuttle cock, and bend the arm that the racket is when striking the shuttle cock”.

The third session lasted 40 minutes and the goal was to familiarize the student-teacher with the details of all four rubrics in the New York statewide assessment at the commencement level in badminton. The scoring and vocabulary for all four levels of each rubric was discussed a great detail. For example, the master-teacher explained what the words “ineffective” and “inconsistent” meant in level two of the application of skills rubric and what “minor errors” and “general concept” meant in the application of rules and conventions rubric. Another example was when the master-teacher explained the difference between giving a three or a four for the personal and social responsibility rubric.

The fourth day of training lasted 30 minutes and was dedicated to the planning of the entire unit (see appendix C for the unit block plan). The emphasis was on the skills, knowledge, and behaviors that were expected of the students and how they relate to the New York statewide assessment at the commencement level in badminton. The amount of time in drill, modified game, and game settings was decided. The master-teacher told the student-teacher the amount of time that was to be spent on all of the skills, rules, and strategies, along with the order of appropriate progressions within a lesson and between lessons. For example, the serve and the clear shot were taught in lesson one which was before more complex shots, such as, the smash or the drop shot which were taught in lessons two and three. The importance of a solid set-induction, constantly checking for understanding, actively moving around the gym, providing clear directions and closure were also emphasized by the master-teacher

The final and fifth day of training last 30 minutes and was specific to the day-to-day management of the peer assessment process and the amount of intervention that was provided to the students. The student-teacher was directed on how to organize, hand out

the assessments, and collect the results during the classes. The student teacher put together four clip boards each day. Each clip board had a letter on it. The letter informed the students of what clip board to use each day. For example 1A, 2A, 3A, and 4A used clip board A everyday. Each clip board along with a pencil had the daily scoring rubrics attached to it and the clip boards were placed on the bleacher ready for the students to pick up and begin their assessment when they were instructed by the student-teacher. After warming-up the class the student-teacher assigned the first assessment group to the bleachers, another group to play at the court that was being observed, and the last two groups assigned to practice their skills on the other side of the gym. The student-teacher directed the students when to start their game play and assessment. At the end of the ten minute block, the student-teacher directed the assessment group to finish recording their scores and then switch spots with the playing group. At the end of the peer assessment process the student-teacher picked up the four clip boards with all of the data.

The other area discussed in session five was the type of intervention used in the unit. There were general statements of intervention provided during the set-induction and closure. For example the master-teacher stated it would be acceptable to say “read the rubrics carefully before scoring your peer” or “think back to the demonstrations that were provided for you and what the correct score should be.” The master-teacher also trained the student-teacher on unacceptable interventions, such as, specific interventions. For example, a specific intervention would be if the student-teacher voiced his agreement with a student on a score.

The second phase of the training was when the student-teacher trained the peers. Prior to the start of the badminton unit the peers did not have formal training on peer assessment. As with any unit of study the essential components of skill, rules, strategy, and behavior were taught during the first few classes, in this case, the first three classes. The essential components taught in the first three classes were directly related to the New

York statewide assessment at the commencement level in badminton.

On day one the student-teacher introduced the class to the serve and the clear shot. The students were given appropriate demonstrations then they practiced the skills in a drill setting. During the drill the student-teacher walked around the gym checking for student understanding and providing assistance to the students. At the end of the drills the student-teacher asked for a few volunteers to play a game with. During this game the student-teacher taught the students the important rules of badminton. The students attempted a game as the student-teacher walked around and provided assistance on rules and skills.

Day two was a review of all the skills and rules learned in day one and the addition of the drop shot. The student-teacher provided the students with appropriate demonstrations and then the students practiced these skills in drill and game settings, as the student-teacher provided assistance.

Day three was a review session of all the previous skills learned in the first two days and the addition of the smash, net, and drive shot, along with doubles strategy. As with the previous two classes, appropriate demonstrations were provided to the students, the students were given time to practice their skills, and the student-teacher provided assistance on all of the skills, rules, and strategy. At the end of the class the student-teacher assessed the knowledge of the various skills covered in class. The students were given a list of all the various types of shots that were covered in class (see appendix D for the checklist assessment). The master-teacher and student-teacher then played a game against each other using a variety of shots. The students were asked to put a check by the type of shot performed by the master-teacher. This assessment checked for the understanding of the various types of shots in badminton.

During the fourth class the student-teacher related the assessment to the essential components learned in the previous three classes. All the essential components were

reviewed and appropriate demonstrations were provided along with how to score the rubric. The students were told what constitutes a one, two, three, or four. The student-teacher also went over the potentially difficult vocabulary that was included in the rubric. Words such as, “energetically”, “resolves conflicts”, “self-control”, “fair play”, “minor errors”, “general concept”, “terminology”, “etiquette”, “observable”, “confined”, “inconsistently”, “evidence”, “tactics”, and “effectively”. The student were then placed in teams and played a game of doubles using the skills learned in the first three classes.

The fifth class allowed the students to practice using the assessment on their classmates (a different peer than the peer that was used in the study) with intervention from the student-teacher. The student-teacher put the students into groups and distributed the assessment instrument. The students were told to play a game and have your partner assess your performance. During this practice assessment the student-teacher walked around and explained the scoring of the rubric and also reminded students of how to perform the skills appropriately. At the end of the fifth class the students were put into a group of four with one playing partner within that group of four. The grouping was based on mixed ability and these groups stayed the same for the research study. The sixteen students were given a group number (1-4) and a group letter (A - D). The sixteen students were labeled as 1A, 1B, 1C, 1D, 2A, 2B, 2C, 2D, 3A, 3B, 3C, 3D, 4A, 4B, 4C, and 4D (see appendix E for the class roster). At this point, the training was over and the assessment and data collection took place over the next four classes.

The badminton unit lasted for ten days and each class was 84 minutes long. The unit was taught by the student-teacher. Throughout the duration of classes 6 through 9, students were assessed using the New York statewide assessment at the commencement level for badminton. Groups one and two assessed each other and groups three and four assessed each other. First, group one played, and group two assessed. Then groups three and four followed the same routine. For example, student 1A assessed student 2A, and

then student 1A played and 2A assessed. See appendix F for the daily peer assessment recording sheet.

The assessment took place over four class sessions. Each day every group had ten minutes to play a doubles badminton game with their group members; for example, group 1A and 1B will play against 1C and 1D while group two will assess. Each student was assessed by the same student everyday, and the same partners within each group played against the other set of partners within the same group each day. There was not any specific intervention from the master-teacher or the student-teacher on how to use New York statewide assessment at the commencement level for badminton during the four days of assessment. During the set-induction and closure each day the student-teacher made general comments such as “make sure to read each step of the rubric carefully before giving a score” or “be honest when rating your peer.”

In addition to the peers assessing, the student-teacher also assessed each student during the 10 minute doubles game throughout the four days (totaling 40 minutes of assessment throughout the four days for each group). The four games a day were video taped by the master-teacher and then later assessed by the master-teacher. See Appendix G for the daily teacher assessment form.

The New York statewide assessment at the commencement level for badminton was used by the student, the student-teacher, and the master-teacher. There are four rubrics that were used in the research. The four rubrics assessed skills, strategy, rules and conventions, and personal and social responsibility. Each day the student recorded a score of 1 - 4 on each of the rubrics. At the end of the class the student-teacher collected the data and the students will not see it again until the next day.

If a student was absent during the assessment a student from the class replaced him/her as a player for the day. The next time the student was present he/she assessed his/her peer by watching video. On the last day of the unit a cognitive test was given on

the rules of badminton.

Statistical Analysis

All the results were collected each day by the student-teacher. The assessment process took place over four class sessions. Each student has a total of twelve scores each day and a total of forty-eight scores over the four days the assessment takes place. There were four rubrics and three assessors for each student. The assessors were a student-teacher, a master-teacher, and a peer. The four rubrics in the New York statewide assessment at the commencement level for badminton are skills, strategy, rules and conventions, and personal and social responsibility. The data allowed the researchers to compare the results from the student-teacher versus the peer, the student-teacher versus the master-teacher, and the peer versus the master-teacher.

The master-teacher, student-teacher, and peer scores were averaged across all four days of observation, and across all four rubrics. A reliability analysis was used to determine if the New York statewide assessment at the commencement level for badminton is a reliable tool that can be used in the classroom. A correlation matrix investigated the master-teacher versus student-teacher results, the master-teacher versus peer results, and student-teacher versus peer results. A repeated-measures ANOVA was used to determine if there was a significant difference ($p < 0.05$, $n = 16$) between the student-teacher versus the peer, the student-teacher versus the master-teacher, and the peer versus the master-teacher.

Chapter 4

Results

The purpose of this chapter is to present the results that were used to determine the reliability of the New York statewide assessment at the commencement level for badminton when assessed by a master-teacher, a student-teacher, and peer during a high school badminton unit. A reliability analysis, a correlation matrix, and a repeated-measures ANOVA are all presented in the results.

The master-teacher, student-teacher, and peer scores were averaged across all four days of observation and across all four rubrics.

Table 1

Descriptive Statistics

	Mean	Std. Deviation	N
Master-Teacher	2.4038	.48577	16
Student-Teacher	2.5356	.53621	16
Peer	2.5600	.61029	16

The Pearson Correlation between the master-teacher and student-teacher is $r = 0.7606$ ($p = 0.001$, $r^2 = 57.9\%$). The Pearson Correlation between the master-teacher and peers is $r = 0.7636$ ($p = 0.001$, $r^2 = 58.3\%$). The Pearson Correlation between the student-teacher and peer is $r = 0.9660$ ($p = 0.000$, $r^2 = 93.3\%$), which is highly correlated, 93.3% of the variance can be explained.

A repeated-measures ANOVA indicated that there were no significant differences ($F(2, 30) = 2.184$, $p = 0.130$) between the master-teacher, the student-teacher, and peers. The reliability standardized alpha coefficient ($= 0.9361$) indicated highly reliable scores.

The results indicate that the New York statewide assessment at the commencement level in badminton is highly reliable when used by a master-teacher, a student-teacher, and peer.

Chapter 5

Discussion

The purpose of this paper was to provide statistical information that would determine if with proper training the New York statewide assessment at the commencement level in badminton is reliable when used by a master-teacher, a student-teacher, and peer in a high school physical education badminton unit. With that in mind, a research study was performed over a four day period involving sixteen high school students in a co-ed physical education class, a master-teacher, and a student teacher.

The descriptive statistics show that the average score given by the master-teacher ($M = 2.4038$) is lower than the average scores given by the student-teacher ($M = 2.5356$) and peers ($M = 2.5600$). The standard deviation for the master-teacher ($SD = .48577$) is more consistent than the standard deviation for the student-teacher ($SD = .53621$) and peers ($SD = .61029$). The Pearson Correlation between the student-teacher and peer is very highly correlated ($r = .9660$). The data indicates the student-teacher and peer are closely related. There are several possible reasons the master-teacher was not as closely related to the peer or the student-teacher.

The first reason may be because of the amount of training and experience the master-teacher had was much more than both the student-teacher and peers. The master-teacher had been teaching and using assessments in his classroom for over four years. His experiences in the field have made him an expert in observing movement. The master-teacher's knowledge of assessment and the ability to observe has improved with each assessment experience. On the other hand, the student-teacher was well versed in the area of assessment, but had only a couple of experiences using authentic assessment and no experience training students to use peer assessment. Prior to the unit the peers had never been involved in formal peer assessment.

Another reason the master-teacher was not as closely related to the peer or the student-teacher may be because how the actual assessment was observed. The master-teacher observed and scored the students by watching a video of the games that was taped 10 feet above the gym floor and in the corner of the badminton court. On the other hand, the student-teacher and peers observed the game live and along side of the badminton court at ground level. This may have been a problem for the master-teacher because the video tape did not pick up all of the sounds and/or the master-teacher may have also observed or did not observe something the peer and student-teacher observed because of the different angle. This could have resulted in a difference in scores because so much of the scoring dependent on sound and making detailed observations.

Another possibility for the difference in results is the master-teacher was stricter than the student-teacher and peers when assessing. The reason for this may be because of the level of training and experience the master-teacher has over the peers and student-teacher. The student-teacher and peers may have been concerned about hurting the feelings of the student they assessed.

Absenteeism could have also contributed to the difference in results between the master-teacher, student-teacher, and peer. There was one student absent on day one of the study, two students absent on day two of the study, and four students absent on day three of the study, and there was perfect attendance on the final day of the study. When a student was absent from class he/she was replaced by a student in the class during their ten minute game.

The master-teacher, student-teacher, and peer would assess the replacement student and then the next day the student that was absent would assess his/her peer by observing the video. For example, if student 1A was absent on day one then student 4C would play in the place of student 1A during his/her game. The master-teacher, student-teacher, and peer assessor 2A would all assess the replacement player 4C. Day two when

student 1A returned to class he/she would assess player 2A's performance from day one by watching the video. The reason this may have affected the data is video assessment was different than assessing the student live. In addition to the video assessment, absenteeism may have also affected the scores because the students may have forgotten part of their training.

When examining a multiple comparison of the dependent variable and having the different days is the independent variable, day three is different from the other days. Day three is significantly different when compared to day one, two, and four (see appendix I for Table 5). Absenteeism may have played a role in this significant difference because day three had the largest amount of students absent.

Although the data at first appears there may have been a significant difference between the master-teacher, the student-teacher, and the peers; a repeated-measures ANOVA indicated that there was no significant difference between the master-teacher, student-teacher, and peer. There are at least three reasons that no significant difference was found between the master-teacher, the student-teacher, and the peers.

The first reason may have been because the training program was successful which resulted in the master-teacher, the student-teacher, and the peers all had an understanding of how to read, interpret, and score the New York statewide assessment at the commencement level in badminton. The second reason may have been the master-teacher, the student-teacher, and the peers all observed the students in a similar manner. The third reason may have been the master-teacher, student-teacher, and peer all had an understanding of the rules, strategies, and skills of badminton, along with what is acceptable behavior in a game.

The goals of authentic assessment are to assess the actual performance of students, hold the students accountable for learning, and concomitantly, hold the teacher accountable for teaching to the objective (Melgrano, 1994). Lund (1997) found authentic

assessment also focuses on a “higher level” of thinking and provides a continuous process embedded in the curriculum and Radford, Schincariol, and Hughes (1995) referred to the authentic assessment style taking place in a “real world” setting. Authentic assessments can be used to assess a wide range of abilities and behaviors in all three domains: cognitive, psychomotor, and affective (Meisels, et al., 1993). Moreover, the idea of peer assessment forces students to focus on skill demonstration, be able to breakdown the skill, communicate their knowledge and evaluate their peers (Kaardal, 2001). The New York statewide assessment at the commencement level in badminton displayed all of the above goals and characteristics for peer authentic assessment.

Conclusion

The peer assessment results found in this study support previous studies such as, Hill and Miller (1997) and Helton (1994). Both of those previous studies noted the benefits of peer assessment. The Butler and Hodge (2001) study reinforced the benefits of peer assessment when performed by high school students. This study was the first of its kind because it compared the actual assessment results among a master-teacher, a student-teacher, and peers.

The New York statewide assessment at the commencement level in badminton was statistically shown to be reliable. According to Elliot (1995), to ensure valid and reliable authentic assessments in physical education, the assessment must relate to the objectives taught in class, the scoring system needs to be clearly stated, and the unit objectives need to be an alignment with the school curriculum. The New York statewide assessment at the commencement level in badminton has met all of Elliot’s guidelines for a reliable test.

According to Fay and Doolittle (2002) NYS AHPERD is striving toward statewide assessment and is aligning the New York State Learning Standards with curriculum and instruction. This research study will support the efforts of NYS AHERD

because of the reliability of the New York statewide assessment at the commencement level in badminton. Having a reliable test, combined with an effective approach to authentic assessment, provides physical education teachers with a proven form of instruction, thus improving student performance.

Future Directions

Future studies should have the master-teacher and student-teacher assessing the same number of students as the peer during a game and all three assessors assessing the performance on video, from the same angle. If the game is video taped, a master-teacher, a student-teacher, and a peer could perform an intra-rater reliability test. An intra-rater reliability test would indicate if each assessor's scores were reliable when compared against their own scores. Also, the study should focus on one or two rubrics. Assessing four rubrics during a ten minute block may have been too much for an inexperienced assessor. Studies should also compare the peers' scores because the majority of peers may be accurate but two or three inaccurate students may skew the data. In a normal physical education class this would be controlled because there would be teacher intervention. In addition to comparing peers, a future study could compare rubrics to determine if one rubric style is more effective than another. Finally similar studies should be conducted over a school year because different units are taught; both the student and the teacher will become better at assessment; and peer assessment should become part of the curriculum.

Appendix A
Informed Consent

STATEMENT OF INFORMED CONSENT

This form describes a research study that your child will be involved in during his/her physical education class. The purpose of the research is to learn the effectiveness of peer assessment in a badminton unit. The skills, rules, strategies, and assessments that will be used are in the Albion Central School Physical Education Curriculum. Albion Central Physical Education teacher and SUNY College at Brockport graduate student, Mr. Carson will be conducting the research.

The first five days of the unit your child will be instructed on the following: how to use the peer assessment rubric and taught basic skills, strategies, and rules of badminton. On the sixth – ninth days your child will assess their partner and be assessed by the same partner. The student and master teacher will also be assessing your child using the same assessment rubric. The NYS Badminton Assessment Rubric will be the tool used.

There are not any risks to this study. This is a normal physical education unit where your child will be expected to participate in movement related to the unit and will perform any cognitive exercises (NYS Badminton Assessment Rubric) asked of them.

The possible benefit from the study is your child will have a greater understanding and ability to perform badminton by using the NYS Badminton Assessment Rubric. Information from this study might suggest that peer assessment may be an effective tool and should be used more in physical education classes.

Any information gathered in this study will remain confidential and will only be shared with Mr. Carson's Research Committee consisting of three SUNY College at Brockport professors.

If you have any questions about the study please feel free to contact Mr. Carson at 589 – 2040 anytime during the day.

Your child's participation in the study is voluntary, but your child is still expected to perform what is asked of her/him for physical education class. Feel free to contact Mr. Carson at anytime during the study if you are uncomfortable or have any questions.

You are being asked if your child's assessment results can be part of the study. If you are allowing your child's data to be part of the study, and you agree with the statement below, please sign in the space provided. Remember, you may change your mind at any point and withdraw your child's results from the study.

I, _____, having read (or had read to me) and understand the information provided in this form, agree to allow my child to participate in this study.

Signature of parent

Date

STATEMENT OF INFORMED CONSENT

This form describes a research study that you will be involved in during your physical education class. The purpose of the research is to learn the effectiveness of peer assessment in a badminton unit. The skills, rules, strategies, and assessments that will be used are in the Albion Central School Physical Education Curriculum. Albion Central Physical Education teacher and SUNY College at Brockport graduate student, Mr. Carson will be conducting the research.

The first five days of the unit you will be instructed on the following: how to use the peer assessment rubric and taught basic skills, strategies, and rules of badminton. On the sixth – ninth days you will assess a partner and be assessed by the same partner. The student and master teacher will also be assessing you child using the same assessment rubric. The NYS Badminton Assessment Rubric will be the tool used.

There are not any risks to this study. This is a normal physical education unit where you will be expected to participate in movement related to the unit and will perform any cognitive exercises (NYS Badminton Assessment Rubric) asked of you.

The possible benefit from the study is you will have a greater understanding and ability to perform badminton from using the NYS Badminton Assessment Rubric. Information from this study might suggest that peer assessment may be an effective tool and should be used more in physical education classes.

Any information gathered in this study will remain confidential and will only be shared with Mr. Carson's Research Committee consisting of three SUNY College at Brockport professors.

If you have any questions about the study please feel free to ask Mr. Carson during class.

Your participation in the study is voluntary, but you are still expected to perform what is asked of you for physical education class. Feel free to speak with Mr. Carson at anytime during the study if you are uncomfortable or have any questions.

You are being asked if your assessment results can be part of the study. If you are allowing your data to be part of the study, and you agree with the statement below, please sign in the space provided. Remember, you may change your mind at any point and withdraw your results from the study.

I, _____, having read (or had read to me) and understand the information provided in this form, agree participate in this study.

Signature of participating student

Date

Appendix B

The New York Statewide Assessment Rubric
for Badminton at the Commencement Level

Task: Students play a singles games for 5-10 minutes using correct rules, a variety of strokes, evidence of strategy, as well as appropriate safety and social behaviors. The person serving will call out the score before the serve. Students will warm-up prior to game play. (Alternative: Students play a singles game modified for a half-court playing space)

Student name	Application of Skills	Application of Strategy	Application of Rules & Conventions	Personal & Social Responsibility	Total / Average Score
1.					
2.					

Application of Skills

(Note: Consistently = performs without error 75% of the time; Effective = achieves intended purpose)

4=Student uses effective legal serves, clears, drop shots, and smash consistently and with few observable errors in technique.

3=Student uses legal serves, clears, drop shots effectively in the game.

2=Student uses a legal serve, clears and drop shots, but skills are ineffective and inconsistent.

1=Attempts skills, but does not serve correctly, or use skills correctly in the game.

Application of Strategy

4=Demonstrates offensive tactics by varying placement of strokes, choosing strokes appropriately, and moving opponent. Demonstrates defensive tactics by consistently returning to home base and ready position.

3=Demonstrates varying selection and placement of strokes, and returns to home base.

2=Uses some strokes appropriately, but inconsistently and with little evidence of offensive placement or defensive positioning.

1=Focus confined to sending and receiving shuttlecock. Movements are inappropriate or inconsistent with basic strategy for game.

Application of Rules & Conventions

4=Plays with no observable errors in scoring, terminology, etiquette and rules of the game. The student announces the score correctly before serving.

3=Applies major rules correctly, but makes minor errors in rules, scoring or terminology. The student announces the score correctly before serving.

2=Demonstrates an understanding of the general concept of the game, but needs assistance applying rules, scoring and conventions of play.

1=Consistently demonstrates incorrect application of rules, terminology, and scoring. Relies on others to play and score correctly.

Personal & Social Responsibility

4=Demonstrates appropriate partner behavior (making line calls, keeping score, etc.) during game. Prevents or resolves conflicts without teacher intervention; plays energetically, with respect for others' safety, with self-control, and fair play.

3=Plays energetically and safely, with self-control and respect for fair play. Cooperates with partner during game.

2=Maintains self-control, is inconsistent in energy and fair play behaviors.

1=Lacks self-control at times, needs reminders and encouragement from others to play in a safe and energetic manner.

Appendix C

Block Plan

BADMINTON UNIT BLOCK PLAN

<p>DAY # 1</p> <p>warm - up safety rules and routines clear shot drills serve drills rules of the game modified game play</p>	<p>DAY # 2</p> <p>warm - up review previous lesson add drop shot game play</p>
<p>DAY # 3</p> <p>review previous lessons add smash shot, net, and drive shots doubles strategy authentic assessment on types of shot game play</p>	<p>DAY # 4</p> <p>review previous lessons doubles tournament introduce peer authentic assessment tool</p>
<p>DAY # 5</p> <p>training for authentic assessment practice day for authentic assessment</p>	<p>DAYS # 6 - 9</p> <p>warm - ups peer authentic assessment</p>
<p>DAY # 10</p> <p>tournament cognitive test</p>	

Appendix D
Student Skills Checklist

Name of the person playing: _____ Name of the person marking the sheet: _____

Check the appropriate type of shot when the person playing completes it. Check each category off every time that type of shot is completed. The player does NOT have to score to get a check.

This is in a game situation and you must attempt the below types of shots. Only attempt a shot, which is appropriate for the situation.

_____ overhead clear	_____ overhead net	_____ short-low serve	_____ drive shot
_____ underhand clear	_____ underhand net	_____ high-deep serve	_____ drop shot
_____ forehand clear	_____ forehand net		_____ smash shot
_____ backhand clear	_____ backhand net		

Appendix E

Class Roster

Test Results and attendance																
							*	*	*	*	**					
			1	2	3	4	5	6	7	8	9	10	Group	Gender	Grade	
Student 1	100						Ab.						1A	M	9th	
Student 5	90												2A	F	9th	
Student 9	80								Ab.				3A	M	11th	
Student 13	80												4A	M	9th	
Student 2	60												1B	F	9th	
Student 6	90												2B	M	9th	
Student 15	80												4C	M	10th	
Student 11	90												3C	M	9th	
Student 8	80			Ab.									2D	M	9th	
Student 12	90												3D	F	9th	
Student 7	90												2C	M	11th	
Student 3	90							Ab.					1C	F	10th	
Student 4	100								Ab.				1D	M	11th	
Student 10	100	Ab.											3B	M	10th	
Student 14	80							Ab.	Ab.				4B	F	9th	
Student 16	90								Ab.				4D	M	11th	
extra student a		ex		ex		ex		ex		ex				M	11th	
extra student b		ex		ex					ex		ex			M	9th	
* peer assessment day																
** cognitive assessment day																
ex: excused for learning lab, students 17 and 18 were not involved in study																
Ab: Absent from class, see data sheets for modifications of peer assessment																

Appendix F

Daily Peer Assessment Sheet

Name of Assessor: _____

Group #: _____

Group Letter: _____

Name of student being Assessed: _____

Group #: _____

Group Letter: _____

Directions: Give your partner a score each day for each of the following rubrics (1-4). They will receive four scores each day (one for each rubric). It is important that you are accurate in your assessment.

Application of Rules & Conventions

4= Plays with no observable errors in scoring, terminology, etiquette, and rules of the game. The student announces the score correctly before serving.

3= Applies major rules correctly, but makes minor errors in rules, scoring or terminology. The student announces the score correctly before each serve.

2= Demonstrates an understanding of the general concept of the game, but needs assistance applying rules, scoring, and conventions of play.

1= Consistently demonstrates incorrect application of rules, terminology, and scoring. Relies on others to play and score correctly.

DAY 1:	DAY 2:	DAY 3:	DAY 4:
---------------	---------------	---------------	---------------

Application of Skills

(Note: Consistently = performs without error 75% of the time; Effective = achieves intended purpose)

4= Student uses effective legal serves, clears, drops shots, and smash consistently and with few observable errors in technique.

3= Student uses legal serves, clears, drop shots effectively in the game.

2= Student uses a legal serve, clears, and drop shots, but skills are ineffective and inconsistent.

1= Attempts skills, but does not serve correctly, or use skills correctly in the game.

DAY 1:	DAY 2:	DAY 3:	DAY 4:
---------------	---------------	---------------	---------------

Application of Strategy

4= Demonstrates offensive tactics by varying placement of strokes, choosing strokes appropriately, and moving opponent. Demonstrates defensive tactics by consistently returning to home base.

3= Demonstrates varying selection and placement of strokes, and returns to home base.

2= Uses some strokes appropriately, but inconsistently and with little evidence of offensive placement or defensive positioning.

1= Focus confined to sending and receiving shuttlecock. Movements are inappropriate or inconsistent with basic strategy for game.

DAY 1:	DAY 2:	DAY 3:	DAY 4:
---------------	---------------	---------------	---------------

Personal and Social Responsibility

4= Demonstrates appropriate partner behavior (making line calls, keeping score, etc.) during game.

Prevents or resolves conflicts without teacher intervention; plays energetically, with respect for others' safety, with self-control, and fair play.

3= Plays energetically and safely, with self-control and respect for fair play. Cooperates with partner during game.

2= Maintains self-control, is inconsistent in energy and fair play behaviors.

1= Lacks self-control at times, needs reminders and encouragement from others to play in a safe and energetic manner.

DAY 1:	DAY 2:	DAY 3: 45	DAY 4:
---------------	---------------	---------------------	---------------

Appendix G

Daily Teacher Assessment Sheet

Student Name	Application of Skill	Application of Strategy	Application of Rules & Conventions	Personal & Social Responsibility
Student 1				
Student 2				
Student 3				
Student 4				
Student 5				
Student 6				
Student 7				
Student 8				
Student 9				
Student 10				
Student 11				
Student 12				
Student 13				
Student 14				
Student 15				
Student 16				

Day _____

Appendix H
Cognitive Test

Badminton Rules Quiz

Name: _____

Block: _____

Date: _____

True / False

- ___ 1. A point may only be scored when serving.
- ___ 2. A player may not touch the net with his/her racket or any part of his/her body while the shuttle is in play.
- ___ 3. It is legal if in the course of a rally, the shuttle touches and passes over the net.
- ___ 4. A shuttle that lands on the line is "good".
- ___ 5. If a server, in attempting to serve, misses the shuttle entirely, it is a loss of serve.
- ___ 6. A server stands in the left service box when their team has six points.
- ___ 7. The server must be standing in the service box, and must contact the shuttle with an underhand motion.
- ___ 8. The serve must pass the front service line and land in the box diagonally opposite.
- ___ 9. A player may not hit the shuttle when it is on the other side of the net.
- ___ 10. At the beginning of a game the team that serves first, both players get a chance to serve before the opponent serves.

Appendix I

Data Results from the Master-Teacher, the Student-Teacher, and Peers

p2b on 1b	3	2	2	3	3	2	2	3
p2c on 1c	2	2	3	2	2	2	2	2
p2d on 1d	3	2	3	3	2	3	3	3
p1a on 2a	2	2	2	2	3	2	3	2
p1b on 2b	2	1	1	3	1	1	2	2
p1c on 2c	3	3	3	4	3	4	3	4
p1d on 2d	1	1	2	2	1	1	2	3
p4a on 3a	2	2	3	3	2	2	3	3
p4b on 3b	3	2	3	3	2	2	3	3
p4c on 3c	3	3	3	4	3	2	3	3
p4d on 3d	2	2	1	1	2	2	2	2
p3a on 4a	2	2	3	3	2	2	2	3
p3b on 4b	1	1	2	2	2	3	3	3
p3c on 4c	3	2	3	3	3	2	3	2
p3d on 4d	1	1	1	2	1	1	1	2
st on 1a	2	1	1	3	3	3	3	2
st on 1b	2	1	2	2	1	1	2	2
st on 1c	2	1	2	2	2	1	2	3
st on 1d	2	2	3	3	2	2	3	3
st on 2a	2	2	4	3	2	2	3	4
st on 2b	1	1	1	2	1	1	2	2
st on 2c	3	2	4	3	4	3	3	4
st on 2d	1	1	1	2	2	2	2	2
st on 3a	3	2	3	3	2	3	4	3
st on 3b	1	1	3	2	2	2	3	3
st on 3c	3	2	4	4	3	3	3	3
st on 3d	2	2	3	3	2	2	3	2
st on 4a	2	2	3	2	2	1	3	2
st on 4b	1	1	2	2	2	3	3	3
st on 4c	2	2	3	2	2	3	3	3
st on 4d	2	1	2	2	2	2	2	2
mt on 1a	2	1	2	2	3	3	3	2
mt on 1b	2	1	2	2	1	1	2	2
mt on 1c	2	1	2	2	2	1	2	3
mt on 1d	2	2	4	2	2	2	3	3
mt on 2a	2	2	4	3	2	2	4	4
mt on 2b	1	1	1	2	1	1	2	2
mt on 2c	4	3	4	3	4	3	4	4
mt on 2d	1	1	1	2	2	2	2	2
mt on 3a	3	2	4	3	2	3	4	3
mt on 3b	2	2	3	2	2	2	3	2
mt on 3c	4	3	4	4	4	3	4	4
mt on 3d	1	2	3	2	1	2	3	2
mt on 4a	2	2	3	3	2	1	3	2
mt on 4b	1	1	2	2	2	2	2	2
mt on 4c	2	2	3	2	2	3	3	2
mt on 4d	2	1	2	2	2	2	2	2

Results are based on the peer assessor watching the video because the peer assessor was absent and could not watch it live.

St-Tr results may vary because he assessed live, where the Mt and Peer assessed by video.

Results are based on a substitute student's performance because the student that was suppose to be assessed was absent.

2	3	2	3	2	2	2	3
2	2	3	3	2	2	3	3
3	2	3	3	3	3	2	3
3	2	3	2	3	2	3	3
1	1	1	3	1	2	2	2
3	4	3	4	3	3	2	4
1	1	2	3	1	1	2	3
3	2	3	3	3	3	3	3
2	3	3	3	3	3	3	3
3	3	3	3	3	2	3	3
2	2	1	3	2	1	3	2
2	2	2	3	2	2	2	2
3	3	4	4	1	2	3	3
2	2	3	1	3	3	3	4
3	2	3	3	1	1	1	2
3	3	3	3	3	2	3	3
2	2	3	2	2	2	3	2
2	2	3	2	2	2	3	2
3	2	3	3	3	3	3	2
3	3	4	4	3	3	4	3
1	2	3	2	2	1	3	2
4	3	4	3	4	3	4	3
2	2	3	2	2	1	3	2
4	3	4	4	3	3	4	4
2	2	3	3	2	2	3	3
4	3	4	4	4	3	4	4
2	2	3	3	2	2	4	3
2	2	3	3	2	3	3	2
2	3	4	4	2	2	3	2
3	3	3	3	3	3	4	3
3	3	3	3	2	2	3	2
3	3	3	3	3	2	3	3
2	2	2	2	2	2	3	2
2	3	3	2	2	2	3	2
3	2	3	3	3	3	3	2
3	3	4	4	3	3	4	3
1	4	3	2	1	1	3	2
4	3	4	4	4	3	4	3
2	4	3	2	2	1	2	2
4	3	4	4	3	3	4	4
2	4	3	3	2	2	3	3
4	3	4	4	4	3	4	4
2	2	3	3	1	2	4	3
2	2	3	3	2	2	3	2
3	3	4	4	1	1	2	2
3	3	3	3	3	3	4	3
3	3	4	3	2	2	3	2

Note- All Mt results are from assessing
by video.

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